CURTIS'S

BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;

WITH SUITABLE DESCRIPTIONS;

BY

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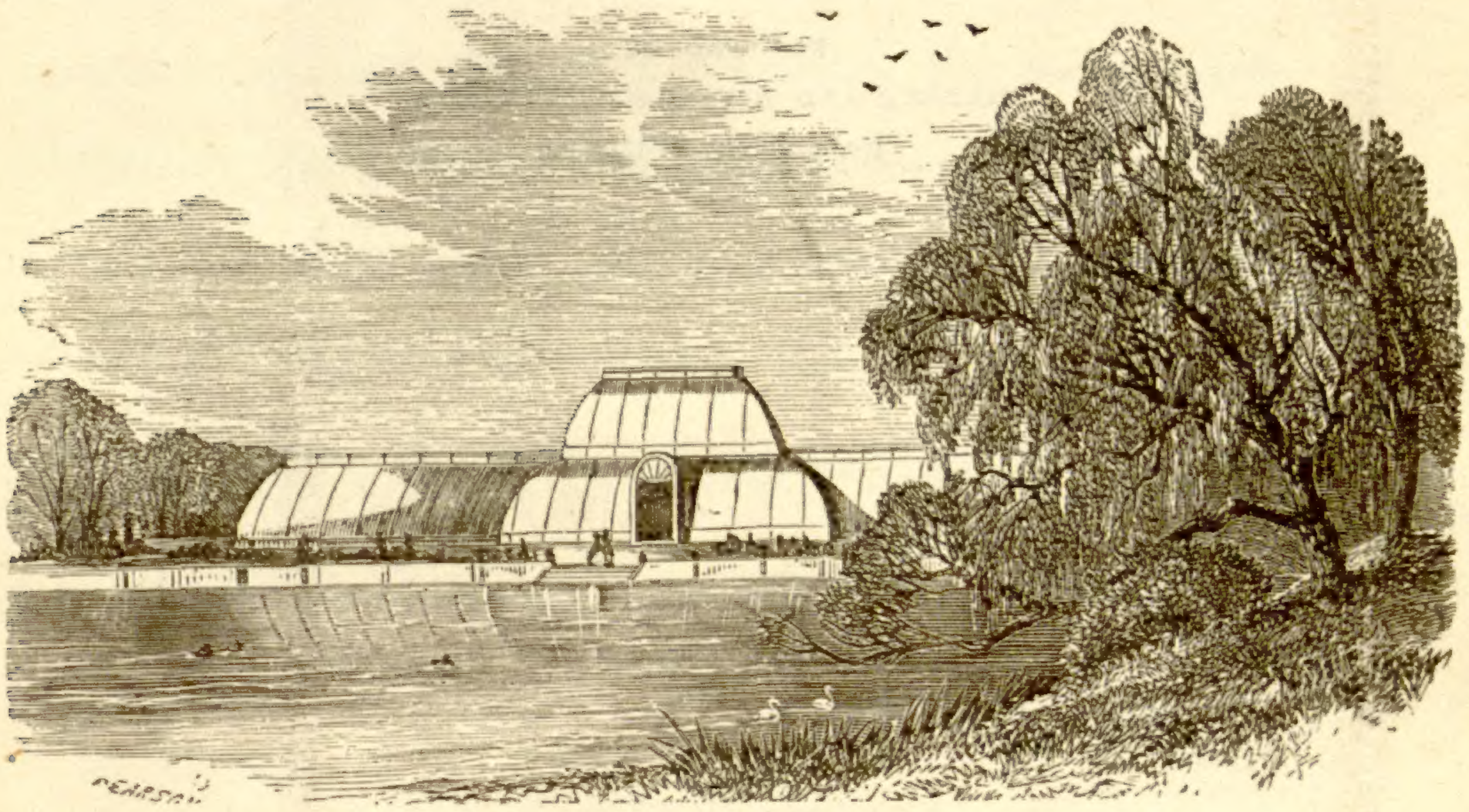

"Full gay was all the ground and queint,
And poudred, as men had it peint,
With many a fresh and sundry flour
That casten up full good savour."—CHAUCER.

LONDON:

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1882.

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Mo. Bot. Garden,
1897.

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TO THE MEMORY OF

THE LATE

GEORGE JOAD, ESQ., F.L.S. & Z.S.,

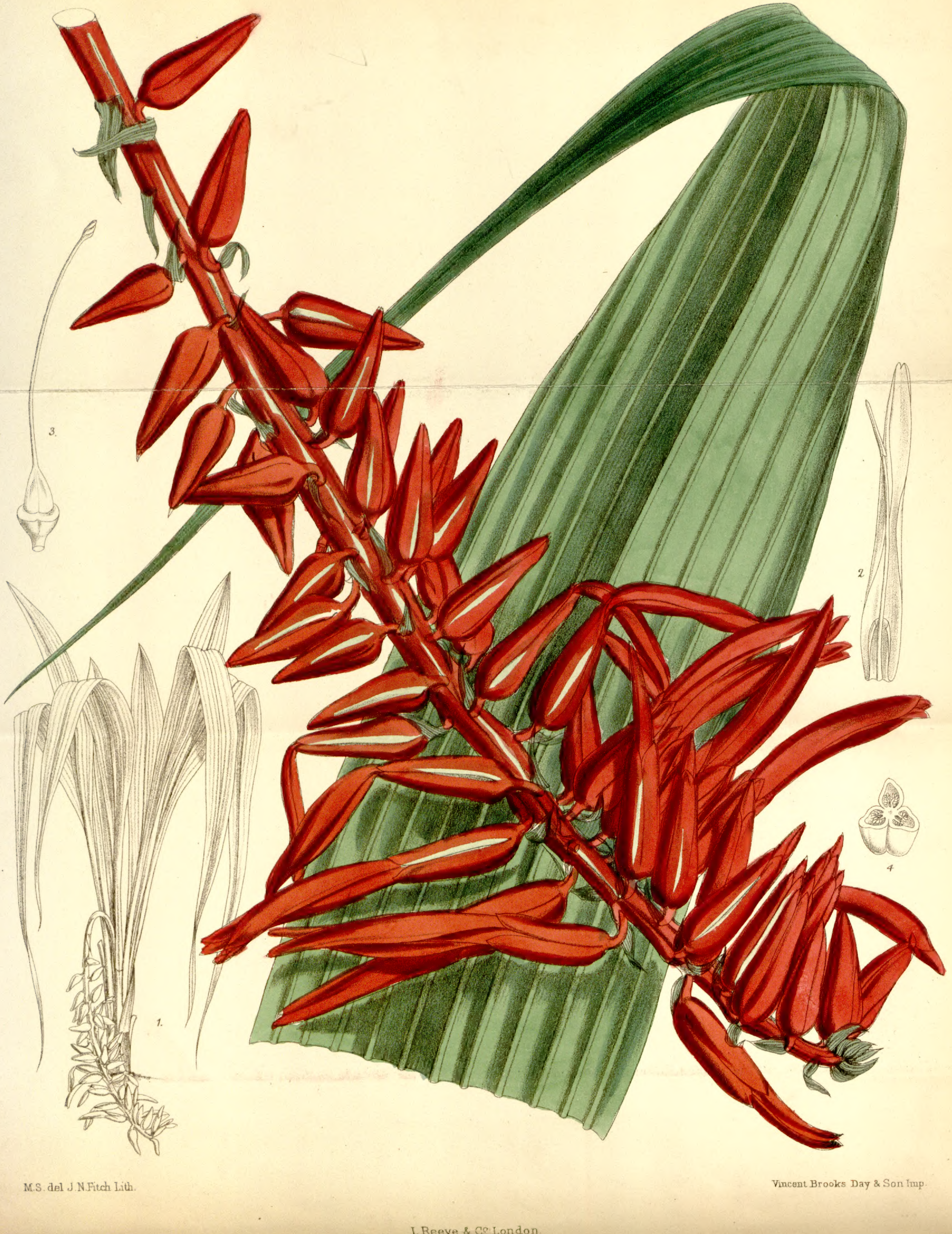
OF OAKFIELD, WIMBLEDON, SURREY,

THIS VOLUME IS DEDICATED,

In grateful remembrance of his services to the cause of Horticulture; and as a tribute to his worth, his many accomplishments, his extensive and accurate knowledge of hardy plants, his ardour and success in cultivating them, and his liberality in encouraging others in this pursuit, to which he devoted his time, his means, and his opportunities.

Royal Gardens, Kew,
Dec. 1*st*, 1882.

J. D. Hooker.



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Tab. 6600.

PITCAIRNIA CORALLINA.

Native of New Granada.

Nat. Ord. Bromeliaceæ.—Tribe Pitcairnieæ.

Genus Pitcairnia, *L'Herit.*; (*Baker in Trimen Journ. Bot.* 1881, p. 225.)

Pitcairnia *corallina;* acaulis, cæspitosa, foliis rosulatis, exterioribus rudimentariis scariosis integris, centralibus 6–8 productis longe petiolatis lanceolatis acuminatis medio recurvatis plicatis facie viridibus glabris dorso albo-furfuraceis, pedunculo cernuo subpedali glabro rubro, racemo pendulo subdenso, pedicellis brevibus, bracteis parvis lanceolatis, sepalis lanceolatis splendide rubris, petalis lingulatis basi appendiculatis calyce triplo longioribus, genitalibus petalis æquilongis.

P. corallina, *Linden et André; Carrière in Rev. Hort.* 1875, p. 321, *cum icone; Baker in Trimen Journ. Bot.* 1881, p. 272.

This is a most distinct plant, the finest for decorative purposes of all the seventy known species of the genus. Its broad plicate leaves narrowed into a long petiole, and its dense drooping racemes of large spreading flowers, in which peduncle, axis, calyx and corolla are all of one brilliant coral-red, mark it at a glance from all the other species, and stamp it as one of the most effective of all the cultivated Bromeliaceæ. It was introduced about 1870, by Linden from the Andes of the province of Choco, in New Granada. It flowered for the first time in Europe with Baron Rothschild at Ferrieres near Paris in 1874. Our drawing was made from a plant that flowered last spring with Sir George Macleay at Pendell Court, near Bletchingley, under the care of Mr. Charles Green.

Descr. Acaulescent, densely cæspitose. *Leaves* rosulate, the outer unproduced ones hard and dry, without any marginal spines; produced leaves six or eight to a rosette, with an erect petiole about a foot long, which is margined by small decurved horny brown spines, and a lanceolate lamina two or three feet in length, three or four inches

broad at the middle, tapering gradually to the base and acuminate apex, plicate like the leaf of a *Curculigo*, recurving abruptly from about the middle when mature, green and glabrous on the face, while furfuraceous over the back. *Peduncle* arising from the base of the tuft of leaves, abruptly recurved, about a foot long, bright red like the flowers, as are also the axis of the raceme and the pedicels. *Raceme* drooping, moderately dense, a foot long; pedicels about a quarter of an inch long, spreading or cernuous; bracts small, lanceolate, scariose. *Sepals* lanceolate, horny, an inch long. *Petals* lingulate, exserted a couple of inches beyond the sepals, furnished with a large oblong basal scale, which is free at the summit and along the edges. *Stamens* as long as the petals; filament white, filiform; anther linear, half an inch long; pollen yellow. *Ovary* ampullæform, immersed at the base only; style filiform, about two inches long; stigmas spirally twisted.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced;* 2, petal, with its basal scale, and a stamen, *life-size;* 3, pistil, *life-size;* 4, horizontal section of ovary, *enlarged.*

M.S. del. J.N. Fitch, Lith.

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TAB. 6601.

ABELIA SPATHULATA.

Native of Japan.

Nat. Ord. CAPRIFOLIACEÆ.—Tribe LONICEREÆ.

Genus ABELIA, *Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 4.)

ABELIA *spathulata*; ramulis foliisque subtus v. utrinque sericeo-puberulis v. glabratis, foliis oppositis elliptico-lanceolatis obtuse acuminatis sinuato-serrulatis in petiolum brevissimum angustatis, floribus 2-nis terminalibus pedunculo brevi gracili sessilibus, bracteis minutis caducis, ovario tenui pubescente, calycis lobis 4–5 oblongo-spathulatis obtusis roseis reticulatis, corolla alba fauce aureo-maculata e basi breviter tubuloso campanulata, lobis 5 rotundatis, staminibus inclusis, filamentis pilosis.

A. spathulata, *Sieb. et Zucc. Fl. Jap.* vol. i. p. 77, t. 34, f. 2.

The Japanese species of *Abelia* are not easily distinguished, varying much as they do in habit, pubescence, form and margin of leaf, and size of flower; and I have some difficulty in discriminating between *A. spathulata*, *A. serrata*, *A. biflora*, and *A. uniflora*. The subject of the plate here given is unquestionably *A. spathulata*, S. & Z., best recognized by the minute bracts, the four or five oblong-spathulate spreading rosy calyx-lobes, and the large flower. Its nearest ally is *A. serrata*, S. & Z., with larger bracts, usually only two elliptic-oblong calyx-lobes and a narrower corolla, gradually narrowed into the basal tube. Of *A. biflora*, Turcz., a Chinese plant, I have seen no authentic specimens; it is said to have a tribracteole peduncle, and a four-fid corolla. *A. uniflora*, Br., again, figured in this work (Tab. 4694, doubtfully the plant of Brown), has minute bracts, corollas larger than *A. spathulata*, and two very large oblong calyx-lobes; *A. serrata*, S. & Z., is referred to it under the above-cited plate, but the form of the corolla of the two is widely different, that of the figure being quite like *A. spathulata*, whilst that of the true *A. serrata* is, as described above, much narrower and more funnel-shaped.

JANUARY 1ST, 1882.

A fifth supposed species is the north Chinese *A. Davidii*, Hance. in Seemann's Journ. Bot. vol. vi. p. 329, and vol. xiii. p. 132; it closely resembles *A. serrata*, and its author suspected it at first to be referable to *A. biflora*, but latterly he regarded it as distinct on account of its bractless peduncles; as, however, I find minute deciduous bracts in a specimen of an otherwise identical plant from north China, no reliance can be placed on this character.

A. spathulata is a beautiful free-flowering hardy shrub, introduced by M. Maries when travelling for Messrs. Veitch in Japan. The specimen figured was sent from Combe Wood nurseries in April of last year.

Descr. A much-branched shrub; branches slender, opposite, divaricate, ultimate pubescent or silky. *Leaves* about two inches long, elliptic-lanceolate, obtusely acuminate, obscurely or more strongly sinuate-toothed, glabrous above, slightly pubescent beneath, pale green with purplish edges, base contracted into a very short silky petiole. *Flowers* sessile in pairs on a short slender peduncle at the tips of the lateral branchlets, minutely two-bracteoled at the base. *Ovary* very slender, sparingly silky, one-third of an inch long. *Calyx-lobes* four or five, one-quarter of an inch long, obovate- or oblong-spathulate, obtuse, stellately spreading, reticulate, rose-red. *Corolla* nearly an inch long, between funnel and bell-shaped, contracted at the base into a short narrow tube, white with yellow blotches in the throat, puberulous or glabrous; lobes rounded, subequal. *Stamens* included, filaments hairy. *Stigma* three-lobed.—*J. D. H.*

Fig. 1, Calyx; 2, corolla laid open; 3, stamens 4, stigma; 5, transverse section of ovary:—*all enlarged*.

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A.B. del. J.N. Fitch, Lith.

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Tab. 6602.

LESPEDEZA BICOLOR.

Native of North China and Japan.

Nat. Ord. Leguminosæ.—Tribe Hedysareæ.

Genus Lespedeza, *Michaux;* (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 524.)

Lespedeza *bicolor;* frutex gracilis, ramis angulatis cinereo-puberulis, ramulis gracillimis brevibus v. elongatis rectis curvis v. pendulis, foliis gracile petiolatis et petiolulatis oblongis v. elliptico-lanceolatis acutis v. obtusis rarius obovatis obcordatis v. orbiculatis muticis v. apiculatis glaberrimis v. subtus puberulis, racemis axillaribus elongatis longe v. breve pedunculatis erectis v. cernuis multifloris, floribus oppositis alternis et subverticillatis pedicellatis, calyce pubescente v. sericeo tubo brevi, lobis lanceolatis acuminatis, corolla læte roseo-purpurea calyce triplo longiore, vexillo late ovato breviter unguiculato marginibus recurvis, alis oblongo-falcatis obtusis, carina alis longiore vexillum æquante apice rotundata, legumine parvo sessili v. breviter stipitato oblique ovato-rotundato membranaceo basi acuto apice tenuiter rostrato, marginibus tenuiter incrassatis, faciebus longe reticulatis, semine oblongo-rotundato testa lævi brunnea.

L. bicolor, *Turczan. in Bull. Soc. Nat. Mosc.* xiv. 69; *Walp. Rep.* i. 749; *Ledeb. Fl. Ross.* vol. i. p. 715; *Maxim. Fl. Amurens.* p. 86; *Regel Gartenfl.* vol. ix. p. 270, t. 299.

L. Sieboldii, *Miquel Ann. Mus. Lugd. Bat.* vol. iii. p. 47.

Desmodium japonicum, *Hort.*

D. paniculiflorum, *Oudem. in Neerlands. Plantenkuin ex Van Houtte Fl. des Serres,* vol. xviii. t. 1888–9; *Carrière in Rev. Hortic.* 1873, p. 211, *cum ic.*

This is one of the most beautiful hardy shrubs that has of late years been introduced into Europe, alike remarkable for its graceful habit, elegant foliage, and the beauty of its copious bright rose-purple racemes. It has a wide range in North-Eastern Asia, from Pekin and the Corean Peninsula, the Amoo and Ussuri rivers, to Japan; and in its native country it varies much in habit, in the shape of the leaflets, length of the racemes, and size and colour of the flowers.

The celebrated traveller and botanist Maximovicz was the first to introduce *L. bicolor* into Europe, he having

sent seed to the Botanic Gardens of St. Petersburg from the Ussuri river, a southern tributary of the Amoor in Mantchuria, in the year 1858. The specimen here figured flowered in an open border of the Leguminous collection in the Arboretum of the Royal Gardens, Kew, in October last.

Descr. A slender leafy shrub, three feet high and upwards; stem angular, usually hoary; branches very slender, often elongate and pendulous. *Leaves* three-foliolate, petiole very slender, one-fourth of an inch to three inches long; leaflets very variable, one-half to two inches long, elliptic oblong obovate obcordate or rounded, tip rounded or acute, with or without a short or long mucro, petiolules short slender, upper surface smooth glabrous, under glabrous or pubescent; nerves numerous, spreading, very slender. *Racemes* axillary, rarely terminal also, short or long, often six to nine inches long and drooping or suberect; peduncle and rachis very slender, glabrous pubescent or silky; bracts minute, subulate. *Flowers* opposite alternate and fascicled, one-third to two-thirds of an inch long; pedicel slender. *Calyx* one-fourth of an inch long, with two minute bracteoles at the base, pubescent or silky; tube short; lobes lanceolate, acuminate, straight. *Corolla* three times as long as the calyx, bright rose-purple, white or violet; standard ovate, very shortly clawed, reflexed with recurved margins; wings shorter than the standard, falcately oblong, obtuse. *Upper stamen* free. *Pod* one-quarter of an inch long, membranous, flattened, obliquely ovate-rotundate or subtrapeziform, base narrowed, point-beaked, margins slightly thickened, faces reticulate. *Seed* flattened, orbicular-oblong, testa brown smooth.—*J. D. H.*

Fig. 1, Section of calyx, staminal tube, and ovary; 2, calyx and bracteoles; 3, standard; 4, wings; 5, keel; 6, stamens; 7, ovary:—*all enlarged.*

6603.

Vincent Brooks Day & Son Imp

Tab. 6603.

SAXIFRAGA DIVERSIFOLIA.

Native of the Himalaya.

Nat. Ord. Saxifrageæ.—Tribe Eusaxifrageæ.

Genus Saxifraga, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 635.)

Saxifraga (Hirculus) *diversifolia*; caule erecto folioso superne corymboso-ramoso glanduloso v. glabrato inferne glabro v. subvilloso, foliis radicalibus gracile petiolatis ovatis v. ovato-cordatis acutis integerrimis, caulinis sessilibus ovatis v. ovato-oblongis acutis semi-amplexicaulibus, marginibus basi sæpe glanduloso-pilosis, corymbo glanduloso-pubescente foliaceo-bracteato, ramis erecto-patentibus pauci- v. multifloris, floribus pedicellatis aureis, calycis tubo brevi obconico 5-gono, limbi segmentis ovato-oblongis obtusis dorso glandulosis, petalis obovatis patenti-reflexis obscure impresso-punctatis marginibus nudis v. basin versus glandulis paucis stipitatis, stylis brevibus, capsula ovato-oblonga, seminibus angulatis subplicatis.

S. diversifolia, *Wall. in Sternb. Saxifr. Suppl.* t. 22; *DC. Prodr.* vol. iv. p. 44; *Hook. Lond. Journ. Bot.* vol. iv. t. 21; *Hook. f. et Thoms. in Journ. Linn. Soc. Bot.* vol. ii. p. 70; *Engler Monog. Saxifr.* p. 125; *Clarke in Hook f. Fl. Brit. Ind.* vol. ii. p. 393.

S. parnassifolia, *Wall. Cat.* n. 451, *partim*; *Don in Trans. Linn. Soc.* vol. xiii. p. 405; *Sternb. l. c.* t. 25.

S. Moorcroftiana, *Wall. Cat.* n. 453; *Sternb. l. c.* t. 24.

S. lysimachoides, *Klotzsch in Reise Pr. Wald. Bot.* t. 42.

This is by far the largest species of Saxifrage belonging to the group of *S. Hirculus*, L., which is eminently a Himalayan group; the type of it being the only species that is found beyond that range of mountains, and from whence it extends westwards into the northern parts of England and south of Scotland (where, however, it is very rare), and throughout the Arctic Circle, retaining its character everywhere with much constancy, except in the Himalaya, where it is represented by four very marked varieties.

The habit of *S. diversifolia* is quite that of a *Parnassia* in respect of its stem and foliage, and it inhabits similarly boggy places, which it adorns with its bright golden flowers.

January 1st, 1882.

It is found throughout the range, from Kashmir to Bhotan, at elevations of 9000 to 17,000 feet, and probably extends thence into the mountains of Western China.

S. diversifolia flowered during last year both at the Botanic Gardens of Edinburgh and Kew; much more luxuriantly in the former establishment, from whence the specimen here figured was sent by Mr. Sadler in July.

Descr. More or less covered with glandular hairs or glabrous, except the corymb, often laxly villous below. *Stem* erect, six to sixteen inches high, strict, cylindric, simple or corymbosely branched above, leafy. *Radical leaves* few or many, long-petioled; petiole one to three inches long, slender, sometimes villous; blade one to two inches long, ovate or cordate, acute, dark green; cauline leaves sometimes very numerous, smaller, sessile, semi-amplexicaul, ovate oblong or rounded, quite entire, smooth or with a few glandular hairs at the base. *Corymb* few or many-branched and -flowered; branches erecto-patent, glandular-pubescent, with leafy bracts at the forks, the uppermost of which are linear. *Flowers* one-half to three-fourths of an inch in diameter, pedicelled, erect. *Calyx-tube* obconic, angled, glandular; lobes much longer than the tube, ovate-oblong, rounded, glandular at the back and margins. *Petals* twice as long as the sepals, obovate, tip rounded, spreading and recurved, golden yellow, obscurely spotted. *Anthers* subglobose. *Ovary* nearly superior, conical, bifid; styles very short, stigmatose at the tips internally. *Capsule* ovate-oblong. *Seeds* angled, testa somewhat folded.—*J. D. H.*

Fig. 1, Sepal; 2, petal; 3 and 4, front and back view of stamen; 5, ovary:—*all enlarged.*

M. S. del. J. N. Fitch Lith.

Vincent Brooks Day & Son Imp.

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Tab. 6604.

CAMBESSEDESIA paraguayensis.

Native of Paraguay.

Nat. Ord. Melastomaceæ.—Tribe Microliciеæ.

Genus Cambessedesia, *DC.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 737.)

Cambessedesia *paraguayensis*; herba humilis, erecta, hirtella v. glabra, caule ramisque 4-gonis angulis anguste alatis, foliis sessilibus ovatis acutis 3-nerviis ciliatis, floribus subcorymboso-paniculatis, calycis glanduloso-pilosi tubo oblongo-campanulato lobis subulato-lanceolatis breviore, petalis late ovatis acutis ciliolatis roseis, antheris subæqualibus longioribus basi antice 2-lobis dorso tumidis, brevoribus basi antice tumidis, ovario glaberrimo, capsula globoso-ovoidea calycis tubo inclusa 3-valvi, seminibus minimis lævibus.

The genus *Cambessedesia* consists of nine known species of South Brazilian plants, with woody rootstocks on stems, and erect usually simple four-angled herbaceous branches, growing in grassy plains and rocky exposed places. All, judging from herbarium specimens, are handsome plants, and the present species is the first ever introduced into European gardens. Though hitherto undescribed, I find specimens exactly corresponding to it in the Kew Herbarium, collected at Villa Rica in Paraguay by B. Balansa, during his journeys of 1874—1877 in that little-known country.

The specimen here figured was communicated by Messrs. E. G. Henderson and Son, of Pine Apple Nursery, Maida Vale, with whom it flowered in July last.

Descr. *Rootstock* short, woody. *Stems* numerous, ten to eighteen inches high, annual, herbaceous, leafy, subcorymbosely branched above, more or less minutely hispid or glabrate, four-angled, the angles narrowly winged. *Leaves* uniform, three-fourths to nearly one inch long, sessile, broadly ovate or elliptic-ovate, acute, three-nerved, pale green, margins quite entire, ciliate. *Flowers* in terminal corymbose glandular-hairy panicles, with stiff

erecto-patent branches, bearing small leaves at the forks. *Flowers* two-thirds of an inch in diameter, shortly pedicelled, erect. *Calyx* green, glandular; tube one-sixth of an inch long, oblong-campanulate, five-ribbed, green; lobes longer than the tube, subulate-lanceolate. *Petals* twice as long as the calyx-lobes, broadly ovate, acute, ciliate, rose-red. *Anthers* nearly as long as the petals, nearly equal in size, slender, falcate, larger with a two-lobed tubercle at the base in front and a smaller simple tubercle behind; smaller anthers with a simple tubercle in front and none behind. *Ovary* quite glabrous, style long, stout, red, deflexed. *Capsule* almost globose, enclosed in the calyx-tube, three-celled, three-valved, valves rather crustaceous. *Seeds* very minute.—*J. D. H.*

Fig. 1, Calyx laid open and stamens; 2, long, and 3, shorter anthers; 4, ovary; 5, transverse section of ditto :—*all enlarged.*

M S del. J N Fitch. Lith.

Vincent Brooks Day & Son Imp

Tab. 6605.

ZEPHYRANTHES CITRINA.

Native of Tropical America.

Nat. Ord. Amaryllidaceæ.—Tribe Amaryllideæ.

Genus Zephyranthes, *Herbert;* (*Kunth Enum.* vol. v. p. 480.)

Zephyranthes (Argyropsis) *citrina;* bulbo magno globoso stolonifero, foliis 3–4 synanthiis anguste linearibus viridibus subpedalibus facie profunde canaliculatis dorso rotundatis, scapo ancipiti vix semipedali, spathâ brevi tubulosa, pedicello producto, perianthii tubo infundibulari ovario longiori, limbi citrini segmentis oblongis acutis, staminibus æquilongis erectis filamentis brevibus, stylo perianthio subduplo breviore, lobis stigmatosis subglobosis.

This is an interesting new *Zephyranthes*, well marked botanically by the rounded lobes of its stigma, and a valuable acquisition horticulturally because all the species of the genus which are in cultivation already have either white or more or less decidedly red flowers. It was brought to us for the first time from Messrs. Veitch last August, when it was in flower. They believe that they received it from Demerara, but its nearest ally as regards the structure of its stigma is the well-known Mexican *Z. candida* of Herbert (Bot. Mag., Tab. 2607), and we have lately received from Mexico a second yellow-flowered species. This was found by Dr. Palmer on the banks of the Rio Grande, and has a similar tube, but a very much smaller perianth-limb.

Descr. *Bulb* globose, with brown membranous tunics, an inch and a half in diameter, copiously stoloniferous. *Leaves* three or four, developed in autumn simultaneously with the flower, narrow linear, bright green, about a foot long, deeply channelled down the face, rounded on the back, a sixth of an inch broad, tinged with red-brown towards the base. *Scape* ancipitous, four or five inches long, green, tinged with red-brown towards the base.

Spathe short, tubular. *Pedicel* under an inch long. *Ovary* oblong-trigonous, green; perianth with a funnel-shaped tube above the ovary, a third or half an inch long, and a bright yellow limb an inch and a half long of six oblong subacute connivent segments under half an inch broad. *Stamens* the same colour as the perianth-limb; filaments under an inch long, erect and equal; anthers linear, half an inch long, their tips falling considerably short of the tips of the perianth-segments. *Style* about an inch long, with a stigma of three distinct rounded lobes.—*J. G. Baker.*

Figs. 1 and 2, Anthers, with top of filament; 3, apex of style with stigma:—*all enlarged.*

M S. del J N Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6606.

PITCAIRNIA alta.

Native of the West Indies.

Nat. Ord. Bromeliaceæ.—Tribe Pitcairnieæ.

Genus Pitcairnia, *L'Herit.*; (*Baker in Trimen Journ. Bot.* 1881, p. 225.)

Pitcairnia (Eupitcairnia) *alta*; acaulis, cæspitosa, foliis basalibus 12–20 linearibus 2-3-pedalibus acuminatis recurvatis facie viridibus glabris dorso persistenter albo-lepidotis prope basin aculeis paucis corneis marginatis, pedunculo elongato floccoso foliis pluribus valde reductis prædito, racemis pluribus laxis in paniculam amplam aggregatis, pedicellis brevibus, bracteis parvis lanceolatis, sepalis lanceolatis uncialibus splendide rubris, petalis concoloribus calyce duplo longioribus basi appendiculatis, genitalibus petalis æquilongis.

P. alta, *Hassk. Retzia*, vol. ii. p. 5; *Baker in Trimen Journ. Bot.* 1881, p. 266.
P. ramosa, *K. Koch in Walp. Ann.* vol. vi. p. 82, *non Jacq.*

This is the finest, for horticultural purposes, of all the Pitcairnias of the *bromeliæfolia* group, as it has an inflorescence five or six feet in height, made up of numerous racemes of flowers in which both calyx and corolla are a brilliant coral-red. Although it is now figured for the first time, it has been many years in cultivation, having been first clearly individualized and excellently described from plants of unknown origin in the Botanic Garden at Buitenzorg by Dr. Hasskarl in 1856. Our Kew plant was received many years ago from Dominica, from Dr. Imray. Our drawing was made from this when it was in flower last July. A fine specimen was sent by Mr. Bull to the Kew Herbarium to be named in October, 1878. A specimen kindly sent for comparison by the late Dr. Karl Koch shows that this was the plant intended under the name of *Pitcairnia ramosa* in the monograph of the genus which he published in the Report of the Berlin Garden for 1857, but the true plant of Jacquin is totally different.

Descr. Acaulescent, densely tufted. *Basal leaves* from

twelve to twenty to a flower-stem, linear-lorate, two or three feet long, three-quarters of an inch or an inch broad at the middle, narrowed gradually to a long point and to a quarter of an inch above the dilated base, where it is armed with a few small brown-black horny prickles, bright green on the face, persistently white-lepidote on the under surface, recurving from about the middle. *Peduncle* two or three feet long below the inflorescence, floccose, furnished with a few much-reduced leaves. *Racemes* several, very lax, arranged in a deltoid panicle; pedicels ascending, a quarter or half an inch long; bracts lanceolate, scarcely longer than the pedicels. *Calyx* bright red, above an inch long, adhering to the ovary at the cuneate base; sepals lanceolate. *Petals* twice as long as the sepals, the same colour, unilateral when expanded, furnished with a distinct scale at the base. *Stamens* as long as the petals; anthers linear, basifixed, half an inch long. *Style* reaching up to the summit of the anthers; stigmas convolute.—*J. G. Baker.*

A, the whole plant, *much reduced*; fig. 1, a petal; 2 and 3, anthers; 4, pistil; 5, horizontal section of ovary :—*all more or less magnified.*

A.B. del. J.N.Fitch Lith,

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Tab. 6607.

SELENIA aurea.

Native of Arkansas.

Nat. Ord. Cruciferæ.—Tribe Alyssineæ.

Genus Selenia, *Nutt.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 72.)

Selenia *aurea*; spithamæa, glaberrima, a basi ramosa, ramis gracilibus laxe foliosis, foliis lineari-oblongis pinnatifidis, segmentis lanceolatis acutis grosse pauciserratis, floribus gracile pedicellatis in axillis superioribus et in racemum subcorymbosum foliosum terminalem dispositis, sepalis lineari-oblongis flavoviridibus, petalis obovato-spathulatis aureis patentibus sepalis duplo longioribus, siliqua lineari-oblonga compressa stylo elongato recto terminata, valvis membranaceis reticulatis costa nulla, septo membranaceo interdum incompleto, seminibus quovis loculo 4–6, orbicularibus compressis marginibus cartilagineo-alatis, cotyledonibus accumbentibus.

S. aurea, *Nutt. in Journ. Acad. Philad.* vol. v. p. 132, t. 6; *Torr. et Gray, Fl. N. Am.* vol. i. p. 99; *Gray Gen. Ill.* vol. i. p. 158, t. 67.

North America is not a favoured country in respect of either the variety or beauty of its Cruciferous vegetation. It has nothing to compare in stature or boldness of foliage with the Brassicas, Crambes, and Isatis of the Old World; nothing so showy as our Alyssums, Arabis, Lunaria, Aubrietia, Malcolmia, and Iberis; nothing so sweet as our Mathiolas, Cheiranthus, Hesperis, and Erysimum; nor has it a herald of earliest spring like our Draba verna. Nevertheless, *Selenia aurea* may claim a place in every garden, whether for the colour or odour of its flowers, or for the considerable time it remains in flower, in which point it contrasts favourably with the fugacious nature of many annual Crucifers.

The genus *Selenia* is a very peculiar one, consisting of only two species, natives of the dry North American regions of Arkansas and Texas, towards the eastern base of the Rocky Mountains. The specimen here figured was raised from seed sent to the Royal Gardens by Professor Asa Gray, which flowered in the open border of the Herbaceous Grounds in June of last year.

February 1st, 1882.

Descr. A perfectly glabrous annual, erect, branched from the root, a span high; branches cylindric, sparingly leafy throughout. *Leaves* one to two inches long, by one-third to one-half broad, linear-oblong, pinnatifid; segments about five to seven pairs, lanceolate, acuminate, coarsely serrate, spreading, rachis narrowly winged. *Flowers* erect, lower solitary in the axils of the upper leaves, on slender pedicels, upper collected in a subcorymbose leafy raceme; pedicels one-fourth to half an inch long, slender, strict. *Sepals* erect, one-fourth of an inch long, linear-oblong, greenish-yellow. *Petals* golden-yellow, twice as long as the sepals, obovate-spathulate, claw erect, limb spreading obscurely emarginate. *Stamens* with slender terete filaments and ten small globose glands at their bases; anthers shortly oblong. *Ovary* lanceolate, sessile; style as long, straight. *Pod* one-half to three-fourths of an inch long, linear-oblong, much compressed, two-celled, base acute or prolonged into a short stalk, membranous septum sometimes incomplete; style one-third as long as the pod; valves very membranous, with no midrib and loosely reticulated nerves. *Seeds* four to six to each cell, orbicular, flattened, with a thickened wing; cotyledons orbicular, radicle very short, accumbent.—*J. D. H.*

Fig. 1, Top of pedicel, with two of the long stamens, glands, and ovary; 2, long stamen and glands; 3, shorter stamens and glands; 4, pod with one valve removed:—*all enlarged.*

M S del J N Fitch Lith

Vincent Brooks Day & Son Imp

L Reeve & Co London

Tab. 6608.

STERCULIA (Brachychiton) discolor.

Native of Eastern Australia.

Nat. Ord. Sterculiaceæ.—Tribe Sterculieæ.

Genus Sterculia, *Linn.*; (*Benth. et Hook. f. Pl. Gen.* vol. i. p. 217.)

Sterculia (Brachychiton) *discolor;* arbor ramulis foliisque subtus incano-tomentellis v. puberulis, foliis ambitu orbiculatis basi late cordatis v. 2-lobis sinu angusto 5–7-gonis v. lobis totidem brevibus acutis v. acuminatis membranaceis supra glabris, floribus spicatim paniculatis 2–3-nis 2-pollicaribus sessilibus roseis, calyce infundibulari-campanulato dense stellatim tomentoso ad medium 6-fido lobis erectis ovato-lanceolatis acutis marginibus tenuibus glabris longe induplicatis, folliculis breviter stipitatis acuminatis intus et extus hirsuto-tomentosis, seminibus tomentosis.

S. discolor, *Benth. Fl. Austral.* vol. i. p. 228.

Brachychiton discolor, *F. Muell. Fragment.* vol. i. p. 1.

Amongst the most curious features of the Australian vegetation are the species of a section of *Sterculia* which is endemic in Australia. All of them have remarkably short, stout, and often deformed trunks, which in the case of the Bottle tree, *S. rupestris*, is contracted at the top and bottom, and swelling out in the middle, rudely resembles some form of flask or bottle. This section has been erected into a genus, distinguished from *Sterculia* by the tomentose inner surface of the fruit, and of the outer coat of the seed, together with the radicle of the embryo being placed next to the hilum of the seed. In the "Genera Plantarum" the uncertainty of these characters in the genus, and other considerations, led to the abandonment of *Brachychiton* (together with many others founded on similarly unstable characters), and the referring back all its species to the old Linnean genus *Sterculia*, with which they agree entirely in habit, &c.

S. discolor is a native of Eastern Australia, from the Clarence and Richmond rivers in New South Wales, north-

ward to the Pine river in Queensland and Buckland Table Land in North Australia. It was discovered by Mr. Charles Moore, of the Sydney Botanical Gardens, who sent seeds to Kew nearly a quarter of a century ago. From them the plant from which the figure is taken was raised; it forms a very handsome tree in the Temperate House of the Royal Gardens about forty feet high, with a crown fifteen feet in diameter, and trunk two feet in circumference at three feet from the ground.

Descr. A tall timber tree, with a large leafy crown; young branches and leaves beneath clothed with a thin grey pubescence or tomentum. *Leaves* long-petioled, five to seven inches long and broad, pale green, membranous, cordate or two-lobed at the base, with a broad or narrow sinus, more or less deeply five-lobed, but never beyond the middle; lobes acute or acuminate, quite entire, palmately five-nerved; petiole very slender, two to three inches long. *Flowers* in terminal contracted spicate panicles, usually in groups of two to three sessile on a strict slender erect rachis six to eight inches long; buds ellipsoid, obtuse. *Calyx* one and a half inch long, between campanulate and funnel-shaped, rustily tomentose without and within, rose-red, six-lobed nearly to the middle; lobes ovate-lanceolate, suberect, with broad thin induplicate margins. *Staminal column* slender, half an inch long, with about fifteen sessile anthers in a subglobose head. *Follicles* large, stalked, rusty-tomentose. *Seeds* hirsute.—*J. D. H.*

Fig. 1, Calyx laid open, showing the stamens; 2 and 3, side and back view of anthers; 4, stellate hair:—*all enlarged.*

M.S. del. J.N. Fitch. L.

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TAB. 6609.

PARNASSIA NUBICOLA.

Native of the Himalaya.

Nat. Ord. SAXIFRAGACEÆ.—Tribe SAXIFRAGEÆ.

Genus PARNASSIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 639.)

SAXIFRAGA *nubicola;* glaberrima, scapis acute angulatis, foliis radicalibus ellipticis v. elliptico-ovatis cordatis v. lanceolatis acutis nervis 5–7 subtus prominentibus, caulino sessili basi ½-amplexicauli, flore 1–1½ poll. diam., sepalis late ovatis obtusis, petalis obovatis sepalis subduplo longioribus margine nudis v. hic illic erosis, staminodiis palæformibus apice obtuse 3-lobis, ovarii ovoidei basi calyci immerso stigmatibus 3 capitatis, capsula semipollicari inferne subconica vertice rotundata stylo brevissimo coronata, seminibus ellipsoideis, testa reticulata firma.

P. nubicola, *Wall. Cat.* n. 1246, *et in Wight. Ill.* t. 21; *Arn. in Hook. Comp. Bot. Mag.* vol. ii. p. 315; *Hook. f. et Thoms. in Journ. Linn. Soc.* vol. ii. p. 81; *Drude in Linnæa,* vol. xxxix. p. 315; *Royle Ill. Pl. Himal.* p. 50; *C. B. Clarke in Fl. Brit. Ind.* vol. ii. p. 402.

The "Grasses of Parnassus" have their head-quarters in India, no fewer than eight species occurring in the Himalaya and Khasia Mountains, of which two extend to the Nilgherry Mountains in the Western Peninsula. The common British species, *Parnassia palustris* is one of them, though it only just enters the region of the Indian flora, being found in Western Tibet by Falconer and others. This is its western known limit in low latitudes, though in higher it occurs all round the globe. *P. nubicola* is the largest and coarsest of all the species, attaining a height of eighteen inches, with sometimes four or five flowering scapes from the root; it however wants the delicate beauty and pure white petals of the European plant. It has been found throughout the Himalaya range, from Kashmir in the West, where it descends to 6000 feet above the sea, to Sikkim in the East, where I have gathered it at 12,000 feet, and as low as 8000. The specimen here

figured was raised from seeds sent to the Royal Gardens by Mr. Duthie, of the Botanical Gardens, Saharunpore, which flowered in July of last year.

DESCR. A slender or stout herb, six to eighteen inches high. *Radical leaves* with long or short petioles; blade two to four inches long, elliptic ovate or cordate, rarely lanceolate, acute, with five to seven strong nerves which are deeply impressed above and very prominent beneath; petiole as long or twice as long as the blade, deeply grooved in front, sheathing at the base. *Scape* acutely four-angled, almost winged, hollow between the angles; cauline leaf solitary, sessile, elliptic, as large as the radical, base semiamplexicaul. *Flowers* one to one and a half inches in diameter. *Calyx-tube* obconic, angled and strongly ribbed; lobes as long, broadly ovate, obtuse, strongly three-ribbed. *Petals* twice as long as the calyx-lobes, obovate, greenish-white, margins even or a little erose towards the base. *Staminodes* spade-shaped, with three short erect obtuse oblong lobes, fleshy, not ciliated. *Ovary* ovoid, base sunk in the calyx-tube; style very short, stigmas three capitate. *Capsule* obovoid, top rounded. *Seeds* ellipsoid, testa firm.—*J. D. H.*

Fig. 1, Calyx and ovary; 2 and 3, stamens; 4, staminode:—*all enlarged.*

M.S. del. J.N. Fitch Lith.

Vincent Brooks Day & Son Imp

Tab. 6610.

SEMPERVIVUM Moggridgei.

Native of the Alpes Maritimes.

Nat. Ord. Crassulaceæ.

Genus Sempervivum, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 660.)

Sempervivum (Rhodanthe) *Moggridgei;* rosulis diam. 2 poll. polyphyllis, foliis elongato-cuneatis v. oblanceolatis pallide viridibus apicibus pilis copiosis arachnoideis connexis superne glabris marginibus minutissime ciliatis, caulibus 4–6-pollicaribus erectis robustis, foliis caulinis et inflorescentia dense glanduloso-pilosis viridibus, foliis caulinis inferioribus suberectis oblanceolatis cuspidatis apicibus barbatis pallide viridibus rubro tinctis, superioribus lineari-oblongis, cyma ter quaterve furcata multiflora, bracteis lanceolatis foliaceis, floribus $\frac{2}{3}$ poll. diam. 10–12-meris roseis, sepalis lineari-oblongis obtusiusculis pubescentibus, petalis lanceolatis acuminatis ciliolatis, staminibus petalis $\frac{1}{2}$ brevioribus, filamentis rubris, antheris breviter oblongis purpureis, polline citrino, ovariis pubescentibus, glandulis hypogynis minutis.

S. Moggridgei, *Hort. De Smet.*

The species of *Sempervivum* are by no means easily distinguished, and in many of the groups of the genus they tend to "run into one another," as botanists express it, and have considerable ranges; whilst in other cases exceedingly distinct species occupy very restricted areas in the mountains of Southern Europe. The subject of the present plate does not agree with any of the one hundred and four forms enumerated by Mr. Baker in the Gardeners' Chronicle (1874, p. 103), and which he has wisely reduced to thirty-three definably distinct species in the Chronicle for 1879. Amongst these latter the nearest ally of *S. Moggridgei* is clearly the well-known *S. arachnoideum* of Linnæus, one of the earliest plants figured in this work (Tab. 68), and which extends from the Pyrenees to the Tyrolese Alps. It differs from *S. Moggridgei* in the much shorter leaves of the rosette, which are more oblong, and form a rounder mass, in the oblong obtuse cauline leaves, and in the smaller and less numerous flowers and glabrous

filaments. These are, however, all differences of degree, and I cannot but expect that *S. arachnoideum* and *Moggridgei* will prove to be local forms of one species, of which the latter is the much handsomer plant. The specimen here figured flowered in the Royal Gardens in September, 1881, and was received under the name it bears from Mr. De Smet. It is a native, I believe, of the Maritime Alps.

DESCR. *Rosettes* two inches in diameter, of many (about one hundred) leaves, of which the outer are spreading or recurved, the inner erect, all connected by a web of white hairs proceeding from their tips. *Leaves* three-fourths of an inch long, elongate-cuneate or oblanceolate, green, glabrous, with minutely ciliate margins and acute tips. *Flowering-stems* a span high, stout, leafy, and, as well as the cauline leaves and inflorescence, clothed with glandular pubescence. *Lower cauline leaves* oblanceolate, three-fourths of an inch long, suberect, ciliate, tips bearded, pale green and reddish; upper more oblong. *Cyme* three to four times forked, with spreading branches; bracts linear-oblong, green, fleshy. *Flowers* three-fourths of an inch in diameter, ten- to twelve-merous. *Calyx* cylindrically cup-shaped, glandular-pubescent; sepals linear, obtuse. *Petals* twice as long as the sepals, spreading, lanceolate, acuminate, apiculate. *Stamens* half as long as the petals, filaments bright red, glabrous; anthers shortly oblong, purple, with yellow pollen. *Hypogynous glands* minute, square. *Ovaries* lanceolate, glandular-pubescent, with suberect styles more than half their own length.—*J. D. H.*

Fig. 1, Calyx; 2, stamens; 3, ovaries:—*all enlarged.*

A B del. J N Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6611.

CATALPA Kæmpferi.

Native of Japan.

Nat. Ord. Bignoniaceæ.—Tribe Bignonieæ.

Genus Catalpa, *Juss.*; (*Benth. et Hook. f. Pl. Gen.* vol. ii. p. 1041.)

Catalpa *Kæmpferi*; arbor ramis horizontalibus, ramulis annotinis viridibus glandulosis, foliis longe petiolatis late ovatis acuminatis basi rotundatis v. cordatis sæpissime inæquilateralibus integris angulatis v. 2–3-lobis lobo medio attenuato-acuminato lateralibus brevibus divergentibus nervis superne pilosis inferne scabris v. glabris, paniculis terminalibus, floribus gracile pedicellatis, calycis labiis integris rotundatis, corollæ tubo campanulato limbi 2-labiati lobis 5 rotundatis marginibus crispatis, capsula pedali cylindracea, seminibus complanatis alatis villosis utrinque in caudas capillaceo-fissas productis.

C. Kæmpferi, *Sieb. et Zucc. Fl. Japon. Sect. alt.* p. 18; *Ill. Hortic.* 1862, t. 319; *Miquel Prolus. Fl. Jap.* p. 286; *Lavallée Ic. Sel. Arb. et Frut. Hort. Segrez.* p. 33, t. 10.

C. bignonioides, *Walt. var.* Kæmpferi, *DC. Prodr.* vol. ix. p. 226.

C. ovata, *G. Don Gen. Syst.* vol. iv. p. 230.

C. Bungei, *Hort.* (*non C. A. Mey.*).

C. himalayensis, *Hort.*

Bignonia Catalpa, *Thunb. Fl. Jap.* p. 257.

This is the Japanese representative and close ally of the Eastern American *Catalpa syringæfolia*, Sims (Plate 1094 of this work), and one of the most striking of the many instances of that intimate relationship, due to common origin, of the plants of the Atlantic United States and Eastern America, which is not shared by the plants of the Pacific Coast States. It has been beautifully figured and fully described in M. Lavallée's "Icones Selectæ Arborum et Fruticum in Hortis Segrezianis collectorum," where we are informed that, though found in various parts of Japan, it is not certainly indigenous in any. It was discovered by Kæmpfer in 1693, and introduced into Belgium by seed in 1849. It has proved perfectly hardy, and though not attaining the stature and size of leaf and flower of the *C.*

syringæfolia, it is a most welcome addition to the tree flora of Europe, being easily propagated by seeds which have ripened on the Continent and by cuttings. *C. Kæmpferi* is often found under the name of *C. Bungei*, a very different tree, not hitherto introduced into Europe, which is a native of N. China, has a much larger flower, and pods eighteen inches long. The tree from which the accompanying plate was taken flowered in the Royal Gardens in August. In France the flowers attain a deeper colour than at Kew. M. Lavallée describes them as spotted with deep violet, and having two yellow bands extending to the base of the middle lobe of the lower lip; these are obscure in our plant.

Descr. A middle-sized tree, twenty-five to thirty feet high, with spreading rather brittle branches and copious foliage; main branches stout; shoots green, smelling disagreeably when bruised. *Leaves* about six inches long and broad, of a bright pale green colour, with brown glandular spots at the junction of the nerves, broadly ovate, base rounded or cordate, margin sinuate or three-lobed, the lateral lobes short, terminal tapering to a fine point, surfaces pubescent at first, then glabrous above, smooth or roughish beneath; petiole two to five inches, round; nerve-axils pubescent. *Panicle* terminal, erect, as long as the leaves, narrow or broad; rachis with small brown petioled leaves at the base. *Flowers* two to three together at the ends of the branchlets of the panicle, horizontal or drooping, pale yellow sprinkled with minute red spots within. *Calyx* very small, lips rounded. *Corolla* campanulate, three-quarters of an inch long, mouth oblique, upper lip short, recurved, lower spreading; lobes all rounded with crisped margins; in many of the flowers a small recurved tongue-shaped appendage to the corolla (see fig. 6) occurs on the corolla-tube near its base above (it is figured also in M. Lavallée's work). *Capsule* a foot long and one-third of an inch in diameter, cylindric, straight, smooth, brown. *Seeds* compressed, velvety, produced at each end into fine silky hairs.—*J. D. H.*

Fig. 1, Longitudinal section of flower; 2, corolla laid open; 3, stamen; 4, rudimentary ditto; 5, transverse section of ovary; 6, corolla with appendage; 7, longitudinal section of ditto:—*all but fig. 6 enlarged.*

M S. del, J.N Fitch Lith

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Tab. 6612.

MASCARENHASIA Curnowiana.

Native of Madagascar.

Nat. Ord. Apocyneæ.—Tribe Echitideæ.

Genus Mascarenhasia, *A. DC.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 721.)

Mascarenhasia *Curnowiana*; frutex gracilis glaberrimus, foliis breviter petiolatis oblongis v. oblongo-lanceolatis apicibus obtusato-attenuatis basi rotundatis v. subacutis, nervis numerosis gracillimis patentibus, supra intense viridibus subtus pallidis, cymis terminalibus breviter pedunculatis 3–5-floris, floribus breviter pedicellatis, calycis parvi segmentis subulatis erectis, corolla rosea glaberrima limbi patentis lobis tubo æquilongis ovato-lanceolatis acuminatis basi subcordatis ad orem puberulis, fauce intus basi filamentisque pubescentibus, antheris subulatis, disci glandulis inconspicuis.

M. Curnoviana, *Hemsley in The Garden*, 1882, p. 98, t. 323.

A very beautiful plant, and being both a free flowerer and remaining long in bloom, one likely to become a favourite for stove cultivation. It belongs to a little-known genus near *Echites*, of which five species have been described, all from Madagascar, and of which none had previously to this one been in cultivation. The name of *Mascarenhasia* commemorates the commander of the Portuguese fleet, Don Mascarenhas, by whom the Island of Bourbon was discovered in 1545, and in honour of whom it was first called (after corruption) Ile Mascaraigne; to give place to that of Bourbon when it was taken by the French in 1642; and this to Reunion at the Revolution. Singularly enough the original name has been perpetuated through all these changes, and so amplified in signification by Botanists as to include not only all the Islands of the Bourbon and Mauritian group under the title of Mascarenes, but sometimes also Madagascar, the Seychelles, and their dependencies.

Mascarenhasia Curnowiana was imported by Messrs.

March 1st, 1882.

Hugh Low from Madagascar through their collector, whose name it bears. The drawing was made in August of last year.

Descr. A slender shrub, with very dark green leaves and branches. *Leaves* opposite, three to four inches long, shortly petioled, oblong or oblong-lanceolate, quite entire, narrowed at the tip into an obtuse point, base acute or rounded, pale beneath; nerves numerous, slender and spreading; petiole one-tenth of an inch long. *Cymes* terminal, few-flowered; peduncle rather longer than the petiole, pedicels shorter. *Calyx* very small, of five subulate erect teeth much shorter than the tube of the corolla. *Corolla* perfectly glabrous, scarlet; tube two-thirds of an inch long, the slightly swollen upper part containing the stamens twice as long as the lower, which is pubescent within; lobes nearly an inch long, ovate-lanceolate, acuminate, base subcordate, margins slightly undulate, disk surrounding the mouth stellate, hairy. *Stamens* subulate, with short pubescent anthers. *Hypogynous disc* obsolete. *Ovary* glabrous; style slender, stigma constricted in the middle, obtuse.—*J. D. H.*

Fig. 1, Portion of corolla and stamens; 2, stamen; 3, ovary; 4, transverse section of ditto:—*all enlarged.*

M S del. J N Fitch. Lith

Vincent Brooks Day & Son Imp

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Tab. 6613.

WAHLENBERGIA saxicola.

Native of New Zealand.

Nat. Ord. Campanulaceæ.—Tribe Campanuleæ.

Genus Wahlenbergia, *Schrader;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 555.)

Wahlenbergia *saxicola;* glabra, caule debili ramoso, ramis brevibus cæspitosis prostratis v. ascendentibus laxe foliosis, foliis radicalibus et rosulatis v. in ramos alternis petiolatis obovatis v. oblanceolatis rarius linearibus integerrimis v. marginibus remote subcrenatis interdum albo-cartilagineis, scapis gracilibus robustisve elongatis nudis 1-floris, floribus 4–5-meris inclinatis, calycis tubo obconico lobis ovato-subulatis, corolla campanulata recta v. obliqua pallide lilacina lobis ovatis obtusiusculis patenti-recurvis, antheris subæquilongis obtusis v. 1–2 apiculatis.

W. saxicola, *A. DC. Monog. Campan.* 144; *Prodr.* vol. vii. p. 433; *Hook. f. Fl. Tasman.* p. 239, t. 71; *Handb. of N. Zeald. Flora,* p. 170; *Benth. Fl. Austral.* vol. iv. p. 138.

W. albomarginata, *Hook. Ic. Pl.* t. 818.

Streleskia montana, *Hook. f. in Lond. Journ. Bot.* vol. vi. p. 267.

The Wahlenbergias represent in the southern hemisphere the Campanulas of the northern, and the little species here figured so closely carries out the generic representation, that it bears the name of the Blue-bell in the New Zealand Colonies. Its only near ally is the common *W. agrestis* of Australia and New Zealand, which is a tall slender branched leafy plant, with much smaller flowers; but it is so very variable in all respects, that I have ventured to think that *W. saxicola* may be a mountain form of it, characterized, like so many alpine forms of lowland plants, by the reduced stem and leaves and larger higher-coloured flowers. In fact, our own Blue-bell (*Campanula rotundifolia*) has varieties quite as different from one another as *Wahlenbergia saxicola* is from *W. agrestis*, and the differences are of the same nature. This view is in some respects supported by the fact of *W. saxicola* and *agrestis* both growing in Tasmania, where the former is as abundant a lowland

weed as it is in New Zealand, and the latter confined to an elevation of about 3000 feet on Mount Wellington.

I am indebted to the rich collection of Mr. Isaac Anderson Henry, of Trinity, Edinburgh, for this interesting plant, which flowered with him in July of last year.

Descr. Perennial, quite glabrous, branching from the root or forming a short rootstock; branches short, slender, leafy, prostrate or ascending. *Leaves* either in radical rosettes or alternate on the branches, one-half to one and a half inch long, narrowly spathulate or oblanceolate or linear, obtuse or acute, quite entire or obscurely crenate or toothed, margins sometimes white and cartilaginous. *Scapes* several, four to six inches high, slender or stout, green, usually quite naked, sometimes with one or two small linear leaves towards the base, one-flowered. *Flowers* very variable in size, one-half to nearly one inch broad, inclined. *Calyx-tube* obconic; lobes ovate-subulate, much shorter than the corolla-tube. *Corolla* campanulate, pale lilac, oblique or straight; lobes broadly ovate, acute, spreading and recurved, about as long as the tube. *Stamens* four or five, subequal or two rather longer than the others; filaments broadly dilated, almost square, ciliated, suddenly contracted beneath the anther, which is linear-oblong subacute or with the two longer apiculate. *Ovary* two- to three-celled.—*J. D. H.*

Fig. 1, Flower with the corolla removed; 2, stamen; 3, longitudinal section of the ovary;—*all enlarged.*

M.S. del. J.N. Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6614.

TALAUMA Candollei, var. Galeottiana.

Native of Java ?

Nat. Ord. Magnoliaceæ.—Tribe Magnolieæ.

Genus Talauma, *Juss.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 18.)

Talauma *Candollei*; ramulis ultimis pedunculisque sericeo-tomentosis v. pubescentibus, foliis petiolatis elliptico-lanceolatis acuminatis firme coriaceis basi acutis, floribus nutantibus, sepalis oblongo-spathulatis concavis petala subæquantibus, petalis flavis exterioribus obovato-oblongis, interioribus subunguiculatis.

T. Candollei, *Blume, Bijdrag.* vol. i. p. 9; *Fl. Jav.* 32, t. 9, *et* 12 A; *Lindl. in Bot. Reg.* t. 1709; *Bot. Mag.* t. 4251.

Var. *Galeottiana*, foliis angustioribus sepalis petalisque angustioribus subæquilongis.

The plant here figured was presented by the late M. Van Houtte under the name of *Magnolia Galeottiana*, presumably a Mexican species, and as such was grown in a cool pit in the Royal Gardens, Kew, for six years, when (in July last) it blossomed and was figured for this work. On comparing it, however, with the Herbarium specimens of Magnoliaceæ, we find on the one hand nothing at all like it from the American Continent, and on the other an almost if not altogether similar plant from Java, to which I can with much confidence refer it, specifically retaining the name it bore in Van Houtte's garden as that of a very slight variety.

The genus *Talauma* is one of the handsomest amongst the *Magnoliaceæ;* and what is very remarkable is, that it occurs in South America as well as in tropical and subtropical Asia. Very few species of it have been introduced into this country, and this is the only one that has flowered in Europe. *T. Hodgsoni*, of the Himalaya, a noble species with leaves sometimes nearly two feet long, is in cultivation at Kew, and there are three other species in British India

that have not yet been introduced. The plant here figured flowered in a cool pit; the species is, however, a tender one, and usually cultivated in a stove. It is deliciously fragrant.

Descr. An evergreen shrub; branches terete and leaves quite glabrous, young shoots and peduncles silkily pubescent with brown hairs. *Leaves* four to seven inches long, narrowly elliptic-lanceolate, acute at both ends, thin but rigid, bright shining green above, darker beneath; nerves faint, nervules finely reticulated; petiole one-half to one and a half inch long, grooved in front, margins of the groove ciliate. *Flowers* three inches in diameter, nodding, on curved peduncles one-half to one inch long. *Sepals* oblong and subspathulate, convex, pale yellow-brown, obtuse. *Petals* nearly as long, outer obovate-oblong, inner clawed, all dull yellow and very concave. *Column of stamens* and *pistil* small for the size of the flower, about half an inch long. *Stamens* appressed to the ovaries, linear, subsessile; connective produced into a triangular tip. *Ovaries* subcylindric; stigma decurrent, recurved at the tip, grooved down the centre; ovules two.—*J. D. H.*

Fig. 1, Stamen; 2, ovaries:—*both enlarged.*

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TAB. 6615.

SCUTELLARIA HARTWEGI.

Native of the Andes of Quito.

Nat. Ord. LABIATÆ.—Tribe NEPETEÆ.

Genus SCUTELLARIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1201.)

SCUTELLARIA (Heteranthesia) *Hartwegi;* gracilis, erecta, caule petiolis et inflorescentia puberulis, foliis petiolatis ovatis subacuminatis remote crenato-serratis basi rotundatis truncatis v. cordatis supra glabris subtus rubro-purpureis nervis puberulis, floralibus minutis linearibus herbaceis, racemo simplici erecto, floribus alternis breviter pedicellatis, calyce brevi 2-fido, corolla pilosa pollicari coccinea lente curva, tubo gracili superne lente inflato, limbo parvo, labio superiore brevi obtuso, inferiore decurvo brevi subrotundato violaceo breviter 3-fido, ovario stipitato stipite obliquo basi tumido.

S. Hartwegi, *Benth. Pl. Hartweg.* p. 244, *et in DC. Prodr.* vol. xii. p. 415.

This handsome plant belongs to a section of Andean *Scutellarias*, the limits between which are hard to define. The type of them is *S. coccinea*, Kunth, a species discovered by Humboldt, and described as having obtuse quite entire leaves, violet-purple beneath, and scarlet flowers. Still nearer to the present plant is *S. Ventenatii* of this work (Plate 4271), in which the leaves are green beneath, and the scarlet corollas shorter, with a broader limb of one colour; it hardly differs from *S. incarnata*, Vent. (Plate 4268), of which a variety, *Trianai*, is figured at Plate 5185. In fact Bentham, the accurate monographer of the genus, gives it as his opinion, as quoted under the last-cited plant, that *S. incarnata*, *Ventenatii*, and *Hartwegi* may be varieties of one species. Whatever may be the case with the first two of these three, the last (our plant here figured) may at once be distinguished from both by the longer more slender corolla with the limb scarcely broader than the tube, and by the larger leaves being of a beautiful violet-purple beneath.

MARCH 1ST, 1882.

I am indebted to Messrs. Veitch for the specimen figured of *S. Hartwegi*, which flowered in their nurseries in May, 1881. It is a native of the western declivity of the Andes of Quito, where it was discovered by Hartweg, who calls it a half-shrubby perennial.

Descr. A slender half-shrubby perennial, with pubescent branches petioles leaf-nerves beneath and inflorescence. *Leaves* two to two and a half inches long, ovate, acuminate, remotely obscurely crenate-toothed, base truncate rounded or cordate, dark green above, red-purple beneath; petiole one-half to three-fourths of an inch long. *Racemes* four to six inches long, terminal, stout, erect, slender; floral leaves (or bracts) small, linear; pedicels alternate, one-eighth to one-sixth of an inch long. *Flowers* subsecund, an inch long, spreading. *Calyx* small, green; lips short, obtuse, upper horned in flower, the horn produced in fruit into a flat shield-like process. *Corolla* scarlet, hairy, many times longer than the calyx; tube slender, inflated beyond the middle; limb small, hardly broader than the tube; upper lip short, obtuse; lower rounded, decurved, violet-purple, three-fid. *Stamens* included; anthers small, didymous. *Ovary* four-lobed glabrous, terminating a stout curved stipes which is tumid at the base. *Style* capillary.—*J. D. H.*

Fig. 1, Calyx and style; 2, corolla laid open; 3, ovary and its stipes; 4 and 5, side and back view of calyx of immature fruit:—*all enlarged.*

M S del. J N Fitch Lith

Vincent Brooks Day & Son Lith

L Reeve & Co.º London

Tab. 6616.

ANTHURIUM Andræanum.

Native of New Grenada.

Nat. Ord. Aroideæ.—Tribe Orontieæ.

Genus Anthurium, *Schott;* (*Prodr. Syst. Aroid.* p. 436.)

Anthurium *Andræanum;* caudice brevi v. subelongato, foliis elongato-ovato- v. oblongo-cordatis acutis sinu profundo acuto nervis numerosis, petiolo gracili elongato geniculo elongato cylindraceo, pedunculo gracili petiolum longe superante, spatha deflexa v. horizontali subpeltata ovato-rotundata acuta explanata basi profunde cordato-2-loba lobis rotundatis superpositis inter nervos elevatos lacunosa coccinea, spadice spathæ æquilonga paullo decurva, floribus pallidis rhombeis, perianthii foliolis 3-gonis vertice truncatis latioribus quam longis, filamentis brevibus subquadratis, antherarum loculis parallelis contiguis oblongis, ovario oblongo, stigmate disciforme.

A. Andræanum, *Linden in Illust. Hortic.* vol. xxiv. p. 43, t. 271; *Engler in A. DC. Monogr. Phanerog.* vol. ii. p. 160; *Masters in Gard. Chron.* 1880, p. 490, fig. 83; *Rev. Hortic.* 1881, p. 170.

This is certainly one of the gaudiest plants that have been of late years introduced into cultivation, far exceeding in all points of foliage and in size of spathe, though hardly in richness of colouring, the now well-known *A. Scherzerianum* (so inadequately represented in Tab. 5319 of this work). It is a native of the province of Choco, in New Grenada, at an elevation of about 4000 feet, and was discovered there many years ago by M. Triana, the indefatigable explorer of that State, who, previous to M. André's visit to South America, directed his attention to the region of its growth as an almost unexplored one, abounding in new and interesting plants. The Kew Herbarium is indebted to the enterprising traveller and introducer of the plant, whose name is so well associated with it, for a reduced sketch of the whole plant, a tracing of a full-sized leaf, and an excellent dried specimen of both leaf and inflorescence. There is also in the Kew Herbarium a specimen of it collected at Popayan by Lehmann, presented by Dr.

Reichenbach. The specimen here figured flowered at Kew in September, and was presented in 1880 by Mr. Linden, to whose establishment the plant was originally sent in 1876, and where it was flowered in 1877. The spadix is figured and described as yellow, with a white band, which latter I do not observe in the Kew specimen, and suspect it to be due to the shedding of the pollen. The Spanish-American name is "Capotillo Colorado."

DESCR. *Rootstock* about as thick as the finger, short or elongate, chiefly subterranean. *Leaves* six to ten inches long by four to six broad, spreading or deflexed, elongate oblong- or ovate-cordate, deeply cordate with rounded lobes and narrow sinus, acute, bright green, reticulated on both surfaces when dry; nerves many, arching; petiole as long as the blade, slender, terete, with a cylindric swelling at the top. *Peduncle* much longer than the petiole, slender, terete. *Spathe* subhorizontal or deflexed, subpeltately attached, three to four inches long by two to three broad, broadly ovate-cordate, with raised reticulating nerves and broad lacunæ between them, vivid scarlet. *Spadix* as long as the spathe, horizontal and decurved, cylindric, gradually narrowed from the base to the obtuse tip, yellowish white. *Flowers* rhombic. *Perianth leaves* short, broad, trigonous, truncate. *Stamens* included, filaments subquadrate; anther-cells oblong. *Ovary* oblong; stigma discoid, sessile. —*J. D. H.*

Fig. 1, Reduced figure of whole plant; 2, two flowers; 3 and 4, stamens; 5, ovary:—*2 to 5 all enlarged.*

6617.

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M. S. del, J.N. Fitch Lith

Vincent Brooks Day & Son Imp

J. Reeve & Co. London

Tab. 6617.

ANDROSACE ROTUNDIFOLIA, var. MACROCALYX.

Native of the Himalaya.

Nat. Ord. Primulaceæ.—Tribe Primuleæ.

Genus Androsace, *Linn.*; (*Benth. et Hook. f. Pl. Gen.* vol. ii. p. 632.)

Androsace *rotundifolia*; perennis, estolonifera, pubescenti-pilosa, foliis omnibus radicalibus rotundatis basi cordatis multilobulatis lobulis crenato-dentatis, scapis elongatis, bracteis foliaceis obovatis v. spathulatis integris v. inciso-dentatis, pedicellis elongatis, calycis lobis corollam superantibus ovatis obovatisve integris v. dentatis, corollæ lobis obcordatis, ovario breviter turbinato vertice depresso.

A. rotundifolia, *Hardwicke in Asiat. Research.* vol. vi. p. 350 (*non Smith, nec Duby in DC. Prodr.* vol. viii. p. 54).

A. incisa, *Wall. in Roxb. Fl. Ind. Ed. Carey et Wall.* vol. ii. p. 16; *Cat.* 616; *Duby, l. c.*

A. cordifolia, *Wall. in Asiat. Research.* vol. xiii. p. 351, *et in Roxb. Fl. Ind. l. c.* 17; *Duby, l. c.*

A. parviflora, *Jacquem. MSS.; Duby, l. c.*

A. elegans, *Duby, l. c.* 55.

Var. *macrocalyx*; laxe villosa, foliis 1–2 poll. diam., involucri bracteis foliaceis obovato-spathulatis incisis, calyce maximo lobis late obovatis dentatis.

This plant has been the subject of unaccountable misconceptions on the part of several authors. It was found by Col. Hardwicke in the year 1796, and well described by him in the Asiatic Researches in 1801, with the locality, "on the most elevated ridges of mountain S.W. of Sirinagur" (Shree-nagur in Kumaon). This description and locality are both copied by Wallich in the Edition of Roxburgh's Flora Indica which he and Carey edited; but to the description he has added under notes of his own, that this plant has been fully described by Smith in his Exotic Botany (vol. ii., p. 107, t. 113), "where Behar and Nepal are stated to be its native countries," and that he has numerous specimens collected in the Turaya and about Katmandu (in Nepal). Now the plant figured by Smith as Hardwicke's *A. rotundifolia* has nothing to do with that plant, neither is it a native of the mountains, but is tho *A. saxifragæfolia*, Bunge, of China and Japan (*A. carnosula*,

Duby), a species remarkable as being the only thoroughly tropical one; for it extends from Calcutta to the base of the Himalaya, and ascends the hot valleys only of these mountains, hardly reaching even a temperate elevation. The true *A. rotundifolia*, on the other hand, occurs chiefly between 4000 and 8000 feet, though sometimes extending down to 2000, and in the drier western ranges it ascends to 10,000 and even 14,000 feet.

A. rotundifolia is one of the first Himalayan plants ever described as such; it is also one of the most sportive species throughout its wide range of distribution, which includes the whole Himalaya from Sikkim to Kashmir, Western Tibet, and Affghanistan. Of its varieties, that here figured is the largest and most developed, the bracts becoming leafy, and the calyx-lobes very large and deeply toothed; between this, and forms only two inches high, with entire oblanceolate acute bracts a quarter of an inch long, flowers no broader, and ovate acute entire calyx-teeth, there is every intermediate form to be found; and in still another variety, as fully developed as that figured, the calyx-lobes are linear-oblong or oblanceolate, and half an inch long.

I am indebted to my indefatigable correspondent, Mr. Isaac Anderson Henry, for the living plants here figured; they were raised from seed sent him by Augustus Johnstone, Esq., and flowered at Hay Lodge in June of last year.

Descr. (of Var. *macrocalyx*). Softly hairy, without stolons. *Leaves* all radical, one to two inches in diameter, orbicular-cordate, lobulate, lobules obtusely three-toothed or -crenate; petiole equalling the blade. *Scapes* slender, longer than the leaves. *Involucral bracts* leafy, half an inch to one inch long, obovate-spathulate, deeply toothed. *Flowers* numerous; pedicels one inch to one and a quarter inches long, spreading. *Calyx* one-half to two-thirds of an inch in diameter; tube small, obconic; lobes large, obovate, deeply toothed. *Corolla* much smaller than the calyx, pale rose-coloured, lobes obcordate. *Ovary* turbinate, with a circular depressed top.—*J. D. H.*

Fig. 1, Flower with corolla removed; 2, corolla laid open; 3, ovary:—*all enlarged.*

M.S. del, J.N. Fitch, Lith.

Vincent Brooks Day & Son Imp

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Tab. 6618.

AMORPHA canescens.

Native of the United States.

Nat. Ord. Leguminosæ.—Tribe Galegeæ.

Genus Amorpha, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 492.)

Amorpha *canescens*; suffrutex erectus, strictus, cano-tomentosus v. puberulus, foliis confertis erecto-patentibus sessilibus lineari-elongatis, foliolis 10–24-jugis approximatis ellipticis oblongisve apiculatis basi rotundatis glanduloso-punctatis, stipulis stipellisque minutis, spicis apicem versus caulis subpaniculatis axillaribus et terminalibus breviter pedunculatis elongatis erectis strictis multi-confertifloris, calycis dentibus ovato-lanceolatis, vexillo brevi dolabriformi oblique truncato, explanato orbiculari-obovato, legumine calycem vix superante 1-spermo.

A. canescens, *Nutt. in Fras. Cat.* et *Gen.* vol. ii. p. 92; *DC. Prodr.* vol. ii. p. 256; *Pursh. Fl. N. Am.* vol. ii. p. 467; *Hook. Fl. Bor. Am.* vol. i. p. 139; *Torr. et Gr. Fl. N. Am.* vol. i. p. 306; *A. Gray Man. Ed.* 5, 130; *Chapm. Fl. S. U. States*, p. 94.

This, the "Lead Plant" of the United States, is said to be so called from a belief that its presence indicates the presence of that ore in the soil—a superstition probably due to the leaden hue of the plant; a better name is that of the genus, "Bastard Indigo." The geographical range of *A. canescens* is very extensive, from the Red-River settlement in British America, southward to Georgia and Louisiana, and even Florida. It is a very beautiful plant, though making little show on a drawing, the amethystine blue standard, and golden yellow of the anthers, of the numerous flowers in numerous racemes, contrasting well with the dull silvery foliage. According to Loudon, it was introduced into England by Lyon in 1812; but it was never common, and soon went out of cultivation. He observes of it, that like all the other species of the genus, it requires to be well cut in every year, or to be planted in very poor soil, or it will not preserve its vitality for any length of time.

April 1st, 1882.

The specimen here figured is from a plant which flowered in the Arboretum of the Royal Gardens in August, and was presented by M. Van Volxem, of Brussels, a most liberal contributor of rare trees and shrubs to this establishment.

Descr. An undershrub two to four feet high, hoary with soft short tomentum, or ashy with a slighter pubescence, quite erect, very leafy. *Leaves* close-set, sessile, spreading on all sides, three to five inches long by three-quarters of an inch to an inch broad; rachis slender; leaflets ten to twenty-five pairs, close-set and produced along the whole length of the rachis, sessile or shortly petiolate, oblong or elliptic, obtuse or apiculate, dull pale green with glandular dots; stipules and stipellæ minute, subulate. *Spikes* numerous towards the ends of the branches, axillary and terminal, very shortly peduncled, slender, strict, erect, very many-flowered. *Flowers* one quarter of an inch long, horizontal. *Calyx* green, subcampanulate, five-toothed, the lower tooth longest. *Standard* about twice as long as the calyx, hooded, obliquely truncate, bright amethystine blue. *Wings* and *keel* none. *Stamens* shortly united at the base, filaments exserted; anthers bright yellow. *Ovary* villous.—*J. D. H.*

Fig. 1, Flower; 2, standard; 3, stamens and ovary; 4, stamens; 5, ovary:—*all enlarged.*

M S del J N Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6619.

PEPEROMIA resedæflora.

Native of New Grenada.

Nat. Ord. Piperaceæ.—Tribe Pipereæ.

Genus Peperomia, *Ruiz et Pav.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 132.)

Peperomia *resedæflora*; glaberrima, caule erecto ramoso, foliis orbiculato-cordatis subacutis 7–9-nerviis radicalibus rosulatis longe petiolatis caulinis oppositis v. 3-natim verticillatis, amentis clavellatis in racemos terminales erectos albos longe pedunculatos dispositis, bracteis liberis orbicularibus peltatis, antheris brevibus filamento brevi, ovario emerso obovoideo, stigmate sessili terminali.

P. resedæflora, *André, L'Illust. Hortic.* vol. i. t. 26.

This singular plant, introduced in 1865 by Mr. Braam into Mr. Linden's establishment at Brussels, was so easily propagated and so attractive that, according to M. André, who first described it in 1870, it in two years became so general a favourite as to be found in all stoves; thus justifying his expression regarding it, borrowed from our horticulturists, that it is "a plant for the million." Though so well known itself, there is some obscurity about the name it should bear. André rightly indicates its general affinity to *P. secunda*, *P. Cotyledon*, and *P. umbellata*, and adds that there is but one plant in the Paris Herbarium that is very close to it, namely, one found by Spruce in the Andes of Equador in 1857, which bears on the ticket, "*Pep. secundæ* affinis." Now this plant of Spruce is also in the Kew Herbarium; it is the number 5552 of his distributed specimens, and though having orbicular-cordate leaves, is referred by Casimir De Candolle (Prodr. vol. xvi. part i. p. 398) from specimens in the Geneva Herbarium to *P. Fraseri*, a species described as having cordate-lanceolate leaves. It differs from *P. resedæflora* in its larger size, suffruticose stem below, abruptly acuminate leaves, and much larger, longer, more crowded catkins.

Whether *P. resedæflora* differs from *P. Cotyledon*, Benth. (Cas. DC. l. c. 401), is more doubtful; in habit the two entirely agree, for *P. Cotyledon*, though described in the Prodromus as stemless, has an erect simple stem (as Bentham indeed states), the inflorescence and flowers are

identical, and the only apparent difference is that the leaves of *P. Cotyledon* are all, except the uppermost, peltate; but this peltation varies in amount, and the allied Sprucean plant has both cordate and peltate leaves; I therefore quite expect that *P. resedæflora* and *P. Cotyledon* will, when more material is obtained, prove identical specifically.

André describes his specimen as having uniformly (on upwards of one hundred flowers) obscurely umbilicate trigonous apparently one-celled anthers, and remarks on the singularity of this structure, suggesting further, under great reserve, that if the character proves constant, *P. resedæflora* will constitute the type of a genus to be called *Trigonanthera*. Unfortunately the plate in the Flore des Serres gives no analyses; ours shows perfectly normal anthers.

P. resedæflora is a native of the table-land of Bogota, where it grows on mossy trunks of oaks; it has long been cultivated at Kew, but by far the finest specimens I have seen are those figured, which were sent by Mr. Lynch from the Cambridge Botanical Gardens.

Descr. Erect, quite glabrous, succulent. *Stem* cylindric, one to one and a half feet high, red, forked or subverticillately branched above. *Leaves* broadly orbicular-ovate, dark green, radical two to two and a half inches long, subacute, basal sinus very narrow and short; nerves seven to nine, radiating from the petiole, stout, reddish beneath; petiole stout, two to three inches long, terete; cauline leaves opposite or whorled in threes, smaller shorter-petioled, very pale beneath. *Peduncles* one to three at the ends of the branches, two to three inches long, simple or with small opposite or solitary lateral branchlets, naked or with a few minute scattered imperfect amenta below the inflorescence. *Amenta* in short conical or long cylindric conical topped racemes, white, spreading, clavellate, obtuse, a quarter to a third of an inch long. *Bracts* orbicular, peltate, stipitate. *Stamens* several in each flower; filaments very short; anthers shortly oblong. *Ovary* pyriform or obovoid, top rounded, with a very minute sessile stigma. —*J. D. H.*

Fig. 1, Portion of amentum with flower; 2, bracts; 3, stamens; 4, ovary; 5, vertical section of ditto:—*all greatly enlarged.*

M.S. del. J.N. Fitch Lith.

Vincent Brooks Day & Son Imp.

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TAB. 6620.

ALOE ABYSSINICA, var. PEACOCKII.

Native of Abyssinia.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, *Linn.*; (*Baker in Journ. Linn. Soc.* vol. xviii. p. 152.)

ALOE *abyssinica* var. *Peacockii*; acaulis, foliis 20–30 lanceolatis sesquipedalibus e basi 5–6 poll. lato ad apicem sensim angustatis pallide sordide glauco-viridibus margine dentibus parvis crebris deltoideis corneis rubro-brunneis patulis armatis, pedunculo valde compresso semipedali, paniculæ ramis 6–8 elongatis ascendentibus, racemis densis oblongis, pedicellis 6–9 lin. longis, bracteis lanceolatis pedicellis paulo brevioribus, perianthii citrini cylindrici pollicaris segmentis lanceolatis tubo oblongo duplo longioribus, genitalibus perianthio subæquilongis, antheris parvis luteis oblongo-globosis.

A. abyssinica var. Peacockii, *Baker in Journ. Linn. Soc.* vol. xviii. p. 175.

Probably this fine Aloe will prove to be distinct specifically from the original type of *abyssinica*, as figured in Prince Salmdyck's monograph of the genus (Sect. xviii., fig. 1); but as we have as yet only had a single plant of it, we prefer for the present to regard it as not more than a variety. It was contained in the fine collection of living plants lent lately to the Royal Gardens by J. T. Peacock, Esq., of Hammersmith, and flowered whilst in our charge in February, 1881, when the present drawing was made. Although a stout well-developed plant, it had no produced stem to the rosette, and the leaves are much broader than in typical *abyssinica*, of a very pale dull glaucous tinge and without any spots, and the tube of the perianth is half as long as the segments. The plant lately figured and described by Professor Todaro (Hort. Bot. Panorm., vol. i., p. 81, tab. 21) under the name of *Aloe percrassa* has similar leaves, in combination with a perianth in shape very like that of typical *abyssinica*, but cinnabar-red instead of yellow.

DESCR. *Leaves* twenty or thirty in a dense sessile rosette,

lanceolate, a foot and a half long, five or six inches broad near the base, narrowed gradually to the pungent point, the colour a pale dull glaucous-green without any spots, the centre half an inch in thickness, the margins with close spreading deltoid spines with horny reddish-brown tips. *Inflorescence* as long as the leaves, a panicle with six or eight ascending branches; peduncle much flattened, glaucous, half a foot long; racemes oblong, dense, three or four inches long; pedicels about half an inch long, articulated at the tip; bracts lanceolate, rather shorter than the pedicels. *Perianth* lemon-yellow, cylindrical, an inch long; tube oblong, half as long as the lanceolate segments. *Stamens* finally reaching to the tip of the perianth-segments, or a little exserted; anthers minute, round-oblong; pollen yellow. *Ovary* oblong, yellow; style straight, reaching finally to the tip of the perianth-segments.—*J. G. Baker.*

Fig. 1, A flower cut open; 2, anthers; 3, pistil; 4, horizontal section of ovary:—*all more or less enlarged.*

M.S. del J.N.Fitch Lith

Vincent Brooks Day & Son Lith

L. Reeve & Co. London

Tab. 6621.

BAUHINIA corymbosa.

Native of China.

Nat. Ord. Leguminosæ.—Tribe Bauhinieæ.

Genus Bauhinia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 575.)

Bauhinia (Phanera) *corymbosa*; alte scandens, inflorescentia sparse ferrugineo-pilosa excepta glaberrima, ramulis sulcatis, foliis infra medium v. ad basin fere 2-partitis, segmentis dimidiato-oblongis basi et apice rotundatis 3–4-nerviis, corymbis terminalibus ramulosque breves terminantibus, calycis lobis 2 tubo cylindraceo multo brevioribus, petalis obovato-rotundatis unguiculatis patentibus, marginibus crenulato-crispatis, staminibus perfectis 3 petalis subæquilongis, legumine lineari 6–8-pollicari ¾-poll. lato, 6–12-spermo, valvis coriaceis lævibus.

B. corymbosa, *Roxb. Fl. Ind.* vol. ii. p. 329, t. 70; *Prodr.* vol. ii. p. 515; *Wall. Cat.* 5788 (*non DC. Mem. Legum.* t. 70).

B. scandens, *Burm. Fl. Ind.* 94 (*non Linn.*).

There has been some confusion between the plant here described and the very closely allied *B. glauca*, Benth., from both being natives of China, and their being almost undistinguishable in dried specimens except these possess fruits. *B. corymbosa* was first described, and exceedingly well, by Roxburgh, from plants introduced from China into the Calcutta Botanical Gardens, and *B. glauca* by Bentham (Plant Junghuhn) from Javan specimens and from Martaban ones of Wallich (to which the MS. name *Phanera glauca* had been previously applied by Bentham). Subsequently, in the Florula Hongkongensis (Kew Journ. Bot. vol. iv., p. 77), Bentham gives *B. corymbosa* as a Hongkong plant, which he afterwards in the Flora Hongkongensis corrected to *B. glauca*, having received fruiting specimens. Now, however, both *B. corymbosa* and *B. glauca* have been found in Hongkong, the latter certainly native, occurring in the Happy Valley and about East Point; whilst with regard to *B. corymbosa* there is no evidence of its being indigenous in that island, though I have seen very good

specimens, identical with native ones (but with foliage only) collected by Dr. Tate in the province of Quantung. In his Memoir on Leguminosæ, I suspect that De Candolle has confounded the two; for whilst describing *B. corymbosa* alone, his figure (tab. 70) intended for that plant represents the foliage of *B. glauca*.

In so far as I can determine, *B. glauca* differs (as Bentham has pointed out) from *B. corymbosa* unmistakeably in the large broad thin straight pod, six to eight inches long by one and three-quarters to two and a half inches broad; it has also larger leaves, bifid, or if divided, only half-way down, and more truncate at the base; whilst *B. corymbosa* has more or less curved pods five to six inches long by one-half to three-quarters of an inch broad, with smaller more coriaceous leaves, more cordate at the base, and these are divided more deeply, usually, as Roxburgh describes them, three-quarters of the way down.

B. corymbosa is one of the most beautiful of climbing plants. The specimen here figured was sent me from Sir G. MacLeay's fine gardens at Pendle Court, Bletchingly, in May of last year.

Descr. A woody climber, branching from the ground, glabrous except the young shoots and sometimes the inflorescence, which is then covered with rusty shining scattered hairs. *Branches* grooved; tendrils opposite, revolute. *Leaves* one and a half to two inches long, divided to the middle or usually deeper; lobes parallel, oblong, with the outer edge, base and tip rounded, and the inner edge nearly straight, two- to four-nerved, bright pale green; petiole one-half to one inch. *Corymbs* terminal and on short subterminal branches, shortly peduncled, many-flowered; bracts small, filiform. *Flowers* rosy, one inch in diameter. *Calyx-tube* one-half to three-quarters of an inch long, three times as long as the two boat-shaped lobes. *Petals* spreading, obovate-orbicular, margins crisped and crenulate. *Stamens* three, perfect as long as the petals, anthers and stout filaments bright red; imperfect filiform with twisted tips.—*J. D. H.*

Fig. 1, Top of calyx-tube with stamens and style; 2, anthers; 3, imperfect stamens; 4, section of portion of ovary :—*all enlarged.*

M.S. del. J.N. Fitch Lith.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London.

TAB. 6622.

PHALÆNOPSIS STUARTIANA.

Native of the Philippine Islands.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus PHALÆNOPSIS, *Blume*; (*Endl. Gen. Pl.* p. 204.)

PHALÆNOPSIS *Stuartiana;* foliis pedalibus anguste elliptico-oblongis obtusis crasse coriaceis luride viridibus subtus basim versus punctis rubris conspersis junioribus marmoratis, floribus amplis numerosis in paniculam decurvam laxam longe pedunculatam dispositis, ramis divaricatis, bracteis parvis coriaceis basi ovarii appressis, perianthio 2 poll. diam., sepalis ellipticis obtusis dorso pallide viridibus lateralibus intus et extus rubro punctulatis, petalis sepalis duplo majoribus rotundato-quadratis eburneis, labello aureo rubro-maculato, segmentis lateralibus oblique obovatis obtusis, callis inter lobos 2-nis cuneato-quadratis terminali orbiculari apice appendice bicruri cruribus subulatis incurvis instructo.

P. Stuartiana, *Reichb. f. in Gard. Chron. New Ser.* vol. xvi. p. 748, fig. 149; *T. Moore in the Florist and Pomologist*, 1882, p. 49, t. 559.

This is a very interesting species of the noblest genus of East Asiatic Orchids, allied to *P. amabilis* (Tab. 4297), *P. grandiflora* (Tab. 5184), and *P. Schilleriana* (Tab. 5530), all distinguished by the curious forked appendage at the tip of the labellum, and the large open panicles of white, or nearly white, flowers. As Dr. Reichenbach notices, its nearest ally is *P. Schilleriana*, the affinity with which is shown by the leaves, which are in that plant always mottled, being so in the young state of this. The flowers of *P. Stuartiana* are more numerous than in any of its congeners. The learned authority just cited states, that 120 have been counted on one panicle, and that in dried specimens in his possession, the flowers rival those of *P. amabilis* in size. It would, therefore, not surprise us if it proved that a panicle of this plant in full flower covered a greater area than does the single inflorescence of any other Orchid.

P. Stuartiana was introduced by Messrs. Low, through their collector, Mr. Boxall, and flowered for the first time

at Clapton in December last, and is named in compliment to Mr. Stuart Low by Dr. Reichenbach.

Descr. *Stem* very short, with flattened creeping roots. *Leaves* two to three, a foot long and upwards, narrowly elliptic-oblong, obtuse, very coriaceous, dull yellowish-green above, paler and reddish beneath, young mottled above, older towards the base and beneath speckled with red. *Panicle* branched, drooping, many-flowered; peduncle long, slender, branches divaricate; bracts small, coriaceous, ovate, appressed to the base of the ovary, which is an inch long. *Perianth* two inches in diameter, spreading. *Sepals* equal, elliptic, obtuse; dorsal pale green without and within; lateral pale green, speckled with red on the half next the lip. *Petals* much larger than the sepals, nearly orbicular, obscurely four-angled, white with a few purple dots towards the base. *Lip* golden or orange-yellow, speckled with crimson and with white tips to the lobes; lateral lobes obliquely obovate, obtuse, or almost hatchet-shaped; two calli between their bases are broadly cuneate, truncate, bright yellow, speckled with red; terminal lobe orbicular, with a forked appendage at the tip, the prongs subulate incurved.—*J. D. H.*

Fig. 1, Side view of flower; 2 and 3, pollinia :—*both enlarged.*

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M.S. del J.N. Fitch. Lith.

Vincent Brooks Day & Son Imp

L Reeve & Co London

Tab. 6623.

STIGMAPHYLLON littorale.

Native of South Brazil.

Nat. Ord. Malpighiaceæ.—Tribe Banisterieæ.

Genus Stigmaphyllon, *A. Juss.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 257.)

Stigmaphyllon *littorale;* ramis petiolis foliis subtus et inflorescentia pubescentibus v. tomentosis, foliis orbicularibus ovatis v. late oblongis basi rotundatis v. cordatis acutis obtusis apiculatisve integerrimis v. sinuatis, petiolo elongato apice 2-glanduloso, pedunculis axillaribus petiolo longioribus, corymbis simplicibus v. compositis multifloris, pedicellis floriferis decurvis demum erectis, sepalis ovatis obtusis glandulis magnis, petalis sepalis multo majoribus orbicularibus unguiculatis erosis unguibus sepala superantibus, staminibus calycem vix superantibus valde dissimilibus, 5 ceteris multo minoribus imperfectis, connectivo crasso granulato, ovario trilobo, stylis crassiusculis apice in appendicem foliaceam dilatatis.

S. littorale, *A. Juss. in St. Hil. Fl. Bras. Merid.* vol. iii. p. 55; *Walp. Rep.* vol. v. p. 212; *Griseb. in Mart. Fl. Bras. Malpigh.* p. 40.

Banisteria bonariensis, *Hook. et Arn. in Hook. Bot. Misc.* vol. iii. p. 157.

The plants of the Natural Order *Malpighiaceæ* are not often seen in cultivation, though many of them are handsome, and those of the genus *Stigmaphyllon* are especially adapted for clothing pillars, &c., in hothouses, from their copious very persistent foliage, which is singularly free from insects (a peculiarity probably due to the disposition of the forked hairs of their surfaces), and abundant golden blossoms. The only species of the genus hitherto figured in this work is *S. heterophyllum* (Tab. 4014), also a native of South Brazil, which has smaller opposite leaves and much shorter peduncles.

S. littorale is a native of South Brazil, Uraguay, Buenos Ayres, and Monte Video, growing on river banks, where it produces large tuberous roots of an astringent nature. It has been in cultivation in the Botanic Gardens of Edinburgh and Kew, and flowers in the autumn profusely.

Descr. A tall leafy climber; branches, leaves beneath

petioles, and inflorescence clothed with a grey pubescence or tomentum; hairs with two divaricating perfectly horizontal branches. *Stem* and *branches* slender, terete. *Leaves* opposite and alternate, long-petioled, two to five inches long, variable in breadth and shape, orbicular ovate or oblong, acute obtuse or apiculate, base rounded or cordate, dark green and glabrous above, quite entire or margin sinuate; petiole two to three inches long, flexuous, biglandular at the apex. *Peduncles* axillary, solitary, erect, longer than the petioles, many-flowered. *Flowers* in terminal simple or compound corymbs; pedicels one-half to one and a half inch long, at first strongly decurved, then erect, often bracteolate in the middle. *Sepals* small, ovate, obtuse, with a pair of large glands on four of them. *Corolla* golden-yellow, an inch in diameter. *Petals* unequal, two larger than the rest, orbicular clawed, erose, the claw longer than the sepals. *Stamens* ten, filaments united below, five much smaller than the rest with large granular connectives and minute anthers; of the five others two have very large anthers, and three smaller ones. *Ovary* three-lobed; styles three, exserted, stout, each terminated by hooded broadly sagittate stigmatiferous appendage.—*J. D. H.*

Fig. 1, Flower with petals removed; 2, stamens and pistil; 3, front and back views of largest anthers; 4, three smaller anthers; 5, front and back views of middle-sized anthers; 6, vertical, and 7, transverse section of ovary; 8, ovule; 9, hair from branch :—*all enlarged.*

M. Spencer, del. et lith.

Vincent Brooks Day & Son Imp.

Tab. 6624.

PINGUICULA caudata.

Native of Mexico.

Nat. Ord. Lentibularieæ.

Genus Pinguicula, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 989.)

Pinguicula *caudata;* sparse glanduloso-puberula, foliis ovali-oblongis obtusis sessilibus v. in petiolum brevem angustatis, corollæ violaceo-purpureæ lobis patentibus lateralibus obovatis apice rotundatis inferiore cuneato-obovato apice truncato v. retuso angulis rotundatis, calcare decurvo cylindraceo acuto lobo inferiore longiore v. breviore.

P. caudata, *Schlecht. in Linnæa*, 1832, p. 393; *Benth. Pl. Hartweg.* p. 70. *A. DC. Prodr.* vol. viii. p. 28.

P. Bakeriana, *Sanders in Gard. Chron. New Ser.* vol. xv. p. 541, fig. 102.

To any one unfamiliar with the changes of form which some plants undergo in different stages of development, it would be difficult to realize the figure here given of the fully formed state of *P. caudata*, to be the same species as that figured under the name of *P. Bakeriana* in the "Gardeners' Chronicle." The fact is, that as our own specimens at Kew show, the leaves of young plants are very short, ovate, acute, extremely numerous, recurved, densely imbricate, forming a compact hemispherical cushion, and overlap from the centre outwards so closely that their acute tips alone are exposed. As the plant grows larger and larger, leaves are thrown out from the crown, of an obovate form, till at last these attain the size and appearance represented in our plate. Singularly enough, the plant flowers freely in both stages, but it is only in the last that the flowers attain the great dimensions of our figure.

In the Kew Herbarium there are numerous specimens of this species from damp shady woods in Mexico, and these display a great variation in size, in the shape of the leaf, from obovate to oblong, and from sessile to petiolate; in the

length and robustness of the scapes; the size of the flower, from one-half to one and a half inch in diameter; and, above all, in the length of the spur, from one-sixth to one inch long.

I am indebted to Mr. Sanders, of St. Albans, for sending to the Royal Gardens a fine healthy plant of this remarkable species, which arrived in the state figured in the "Gardeners' Chronicle," but in the following year assumed that here figured.

Descr. More or less glandular-pubescent in the leaves above scapes and calyx. *Leaves* in the young plant small, ovate, acute, densely imbricate in an orbicular rosette; in the older plant few, spreading and recurved, one to four inches long by one and a half to three inches broad, obovate, obtuse, with a thick obscure midrib, dull pale green with dirty purplish margins. *Scapes* five to seven inches long. *Flower* deep bright violet-purple. *Calyx-lobes* oblong or obovate-oblong, obtuse. *Corolla* one to two inches in diameter; tube very short indeed; limb spreading, deeply lobed; four lateral lobes obovate, with rounded tips; lower lobe cuneate-obovate, tip broad, retuse. *Stamens* very short, included in the tube, filaments glandular. *Ovary* depressed-globose, glandular; stigma sessile, very broad, transversely two-lipped.—*J. D. H.*

Fig. 1, Top of scape with stamens and ovary :—*enlarged.*

6625.

M.S. del. J.N Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6625.

SATYRIUM NEPALENSE.

Native of the Mountains of India.

Nat. Ord. Orchideæ.—Tribe Ophrydeæ.

Genus Satyrium, *Thunb.*; (*Endl. Gen. Pl.* p. 211.)

Satyrium *nepalense*; glaberrimum, gracile v. robustum, foliis ovatis v. lanceolatis acutis, nervis validis, bracteis flores superantibus lanceolatis inferioribus reflexis, floribus roseis, sepalo antico lineari-oblongo obtuso deflexo, lateralibus multo majoribus oblongo-ovatis obtusis, petalis sepalo antico multo minoribus oblongis obtusis recurvis, labello cucullato dorso carinato marginibus recurvis crenatis, calcaribus ovarium brevioribus æquantibus v. superantibus.

S. nepalense, *Don Prodr.* 26; *Wight Ic. Pl. Ind. Or.* t. 929; *Lindl. Gen. et Sp. Orchid.* 340, *and in Journ. Linn. Soc. Bot.* vol. iii. p. 44.

S. Perrottetianum, *A. Rich. in Ann. Sc. Nat. Ser.* 2, vol. xv. p. 76, t. 5; *Wight, l. c.* t. 1716.

S. albiflorum, *A. Rich. l. c.; Wight, l. c.* t. 1717.

S. Wightianum, *Lindl. Gen. et Sp. Orchid.* p. 340, *and in Journ. Linn. Soc. l. c.; Wight, l. c.* t. 1718.

S. pallidum, *A. Rich. l. c.*

S. ciliatum, *Lindl. Gen. et Sp. Orchid.* p. 340, *and in Journ. Linn. Soc. l. c.* p. 44.

This is the commonest Orchid in the hills of India, abounding in the Himalaya from Simla eastward; also found in the Khasia Mountains, in those of the Deccan Peninsula from the Bababooden Hills to Travancore, and in Ceylon. The elevation it attains varies with the climate. In the north-western Himalaya it ranges between 4000 and 8000 feet, in the eastern between 6000 and 12,000; in the Khasia it is found at 4000 to 6000 feet, and in the Nilgherry Hills and in Ceylon at about the same. Of the six species to which this plant has given rise, there is not one presenting a shadow of a good character; as many could with equal reason be made of our common *Orchis latifolia*, which has nearly as wide a range in Europe (from Norway to South Morocco) as *S. nepalense* has in India. Wight, indeed, retains and figures the type,

together with *Perrottetianum*, *albiflorum*, and *Wightianum*, but says that they grow intermixed and present no constant characters. Lindley in his Contributions to the Orchidology of India (Journ. Linn. Soc.) unites *Perrottetianum*, *albiflorum*, and *pallidum* with *nepalense;* and keeps *Wightianum* and *ciliatum* distinct, relying on the dwarf habit and blunt dense spike of the former, and the stout spurs of the latter.

S. nepalense is hardly an ornamental, though highly curious and very sweet-scented plant, differing from European genera in the twin spurs descending from the lip and lying on the ovary. It is the only Indian species of the genus, which is otherwise African, extending from Abyssinia to the Cape. The scent of the flower is much like that of the common *Gymnadenia conopsea.* The Royal Gardens are indebted to Mr. Elwes for tubers, which he sent from Sikkim, in 1881, to Kew. It flowered in both his garden and that of Kew at the same time, namely, in January of the present year.

Descr. An erect glabrous leafy terrestrial fragrant Orchid, very variable in stature, foliage, and number of flowers, from six to thirty inches high. *Stems* from the thickness of a crow-quill to that of the finger. *Leaves* alternate, two to eight inches long by one to four inches broad, ovate or lanceolate, strongly ribbed, loosely sheathing at the base, sheaths ribbed. *Spike* two to six inches long, dense- or lax-flowered; bracts exceeding the flowers, lanceolate, green, the lower often an inch long and reflexed. *Flowers* about three-fourths of an inch long. *Perianth* pale or deep rose-pink. *Sepals* small, dorsal linear-oblong obtuse decurved, lateral much larger ovate-oblong obtuse recurved; sepals much smaller than the dorsal sepal oblong obtuse recurved. *Lip* very concave, helmet-shaped with reflected crenate border and two spurs that equal the ovary, or are longer or shorter than it. *Column* pedicelled; anther-cells dorsal, stigma very broad.—*J. D. H.*

Fig. 1, Front and, 2, back view of flower; 3, front and, 4, side view of column; 5, pollen-masses:—*all enlarged.*

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M S. del J N Fitch Lith,

Vincent Brooks Day & Son Imp

Tab. 6626.

GLOBBA atro-sanguinea.

Native of Borneo.

Nat. Ord. Scitamineæ.—Tribe Globbeæ.

Genus Globba, *Linn.*; (*Endl. Gen. Pl.* p. 222.)

Globba *atro-sanguinea*; vaginis foliis subtus et inflorescentia pubescentibus, foliis ovato- v. elliptico-lanceolatis utrinque acuminatis saturate viridibus, spica simplici erecta, bracteis inferioribus remotis oblongis convolutis superioribus coccineis ovatis explanatis patulis v. recurvis, ovario oblongo, calycis cylindracei infra medium 3-lobi tubo brevi lobis subulato-lanceolatis, corollæ tubo gracili glabro calyce triplo longiore, lobis brevibus late ovatis acutis, labello oblongo basi 2-lobo lobis rotundatis, antheræ alis profunde 2-fidis laciniis triangularibus acutis.

G. atro-sanguinea, *Teijsm. et Binnend. Plant. Nov. Hort. Bogor.* no. 117.

G. coccinea, *Hort.* (*Gard. Chron.* vol. xvi. p. 23, *in Report of Scientific Committee of R. H. S.*).

Under *G. Schomburgkii* (Tab. 6298) will be found some remarks on the curious genus *Globba*, so little known under cultivation, though so common in tropical Asia and its islands. When it flowered, it was exhibited at the Scientific Committee of the Royal Horticultural Society, and being supposed to be a new species, was named provisionally *G. coccinea* (see Gard. Chron. New Ser. vol. xvi. p. 23); it is however undoubtedly the *G. atro-sanguinea* of Messrs. Teijsmann and Binnendijk, described in 1863 from Bornean specimens introduced into the noble gardens of Buitenzorg in Java.

This beautiful plant was procured by Mr. Burbidge during his travels in Borneo (of which he has given us an excellent account in his "The Gardens of the Sun"), and was raised by his employers, Messrs. Veitch, who forwarded it to the Magazine for figuring in July of last year.

Descr. *Stem* slender, strict, erect, two to three feet high. *Leaves* three to four inches long, sessile on the sheath, elliptic-lanceolate, acuminate at both ends, dark green

above with yellowish margins, pale beneath and there loosely pubescent; sheath red-brown, pubescent, closely clasping the stem throughout its length. *Spike* strict, erect, sparingly shortly branched, pubescent; lower flowerless bracts distant, spreading, or erect, one-half to three-fourths of an inch long, oblong-lanceolate, convolute, red-brown; upper or flowering bracts crowded, ovate, acute, spreading and recurved, bright-red, as are the rachis and branches. *Flowers* one and a half inch long, glabrous. *Ovary* oblong and calyx red, the latter tubular cleft two-thirds down into three narrow acuminate segments. *Corolla* pale yellow; tube very slender, three times as long as the calyx, limb short; outer segments ovate, acute, not one-fourth the length of the tube; inner smaller. *Lip* oblong, base two-lobed, lobes short rounded. *Filaments* as long as the corolla-tube; anther-wings divided two-thirds way down into triangular acute lobes.—*J. D. H.*

Fig. 1, Flower; 2, anther; 3, ovary, hypogynous glands, and base of style; 4, stigma; 5, transverse section of ovary :—*all enlarged.*

6627.

M.S. del. J.N. Fitch Lith.

Vincent Brooks Day & Son Lap.

Tab. 6627.

APHELANDRA Chamissoniana.

Native of South Brazil.

Nat. Ord. Acanthaceæ.—Tribe Justicieæ.

Genus Aphelandra, *Br.* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1102.)

Aphelandra *Chamissoniana;* fruticosa, ramulis puberulis exceptis glaberrima, ramis teretibus, foliis elliptico-lanceolatis longe acuminatis apicibus obtusiusculis membranaceis in petiolum longe angustatis supra saturate viridibus secus costam nervosque albidis subtus pallidis, spica sessili late oblonga, bracteis dense imbricatis late ovato-lanceolatis longe acuminatis recurvis flavis spinoso-dentatis, corolla glabra flava, tubo bracteis longiore æquali limbo subæqualiter 5-fido quadruplo longiore.

A. Chamissoniana, *Nees in Mart. Fl. Bras. fasc.* 7, p. 90, *et in DC. Prodr.* vol. xi. p. 299.

A. punctata, *Hort. Bull.* (*Catal.* No. 184, 1882, p. 25).

Though I have seen no authentically named specimen of *Aphelandra Chamissoniana*, and though the latter is described by Nees as having a scarlet corolla, I can hardly doubt the plant here figured being referable to that species. The native country of Nees' *A. Chamissoniana* is St. Catharina in South Brazil, from whence there is an unnamed *Aphelandra* in the Kew Herbarium, communicated by F. Mueller, agreeing with Nees' description and with Mr. Bull's plant in every particular, except possibly the colour of flower, which cannot be ascertained from the dried specimen. In Mueller's specimen it has the same brown hue that both yellow- and scarlet-flowered species assume in that state. Nees indeed had seen but one specimen, and that a Herbarium one collected by Chamisso early in the century, and probably guessed at the colour. It is hardly conceivable that there should be at St. Catharina two species with such remarkable bracts agreeing in every particular but the colour of the corolla.

This beautiful plant was raised from seed imported by

Mr. Bull, with whom it flowered in November of last year. It was provisionally named *A. punctata* in reference to the dotted white edges of the pale bands on the leaves.

Descr. A weak shrub, glabrous except the young branches and petioles, which are minutely pubescent. *Stem* woody, slender, branches terete. *Leaves* four to five inches long, membranous, elliptic-lanceolate, acuminate at both ends, narrowed at the base into a slender petiole, tip obtuse, deep green above with broad white bands along the courses of the midrib and nerves, pale beneath. *Spike* terminal, sessile, three to four inches long by two to three broad, bright yellow throughout except the buds and tips of the bracts, which are green. *Bracts* one and a half inch long, decussately closely imbricate, ovate-lanceolate, strongly recurved, concave, tip very slender, margins strongly spinous-toothed; bracteoles filiform, longer than the calyx, rigid. *Calyx* one-third of an inch long; sepals narrowly lanceolate, acuminate, with needle-like tips. *Corolla-tube* one and a half inch long, slightly curved, nearly equal throughout, glabrous; limb one-fourth the length of the tube, lobes nearly equal in length, upper bifid, lateral and lower ovate subacute. *Anthers* linear-oblong, subequal; connective hairy, of the inner pair most so. *Ovary* glabrous.—*J. D. H.*

Fig. 1, Lateral anthers; 2, one of the inner pair; 3, ovary and disk; 4, vertical, and 5, transverse section of do.:—*all enlarged.*

M.S.del.J.N.Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6628.

Cœlia bella.

Native of Guatemala.

Nat. Ord. Orchideæ.—Tribe Maxillarieæ.

Genus Cœlia, *Lindl.*; (*Endl. Gen. Pl.* p. 190)

Cœlia *bella*; pseudo-bulbis ovoideo-globosis subcompressis lævibus, foliis anguste ensiformibus subgramineis longe acuminatis striato-nervosis 3–5-costatis, vaginis elongatis, scapo brevi paucifloro erecto, vaginis amplis scariosis distiche imbricatis cymbiformibus acuminatis, bracteis spathaceis elongato-lanceolatis erectis membranaceis, floribus 2–2½ pollicaribus erectis, perianthio tubuloso-infundibulari extus pallide straminеo intus albo apicibus sepalorum et petalorum patentibus roseo-purpureis, sepalo dorsali oblongo obtuso, lateralibus cum basi columnæ in mentum elongatum apice 2-lobum productis decurrentibus, labello breviter unguiculato elongato sensim in auriculas (lobos laterales) breves obtusas dilatato et in apicem linguæformem (lobum terminalem) auream recurvam supra callosam producto, ovario gracili 9-alato.

C. bella, *Reichb. f. in Walp. Ann.* vi. 218.

Bifrenaria bella, *Lemaire Jard. Fleuriste*, vol. iii. t. 325 (1853).

Bothriochilus bellus, *Lemaire Ill. Hortic.* vol. iv. p. 30 (1856).

The curious genus *Cœlia* seems divisible into two sections by the characters of the inflorescence; of these the first has racemes of numerous horizontal flowers much exceeded by the long spreading bracts, and a shortly produced base to the column; to this section belong the original *C. Baueriana*, Lindl. (Bot. Reg. 1842, Tab. 36), *C. macrostachya*, Lindl. (Plate 4712 of this work), and some undescribed species. In the plants of the second section the flowers are few, erect, longer than their bracts, and the base of the column is produced to twice its own length, giving a long tubular or infundibular aspect to the flower. To this belong the plant here figured, together with *C. Guatemalensis*, Reichb. f. (in Walp. Ann. vi. 219). For the second of these the genus *Bothriochilus* is proposed by Lemaire, but it has no characters to stand upon, and indeed it is very probable that plants with intermediate characters will be found uniting the groups.

June 1st, 1882.

The reputed native country of *C. bella* is Ile St. Catherine, where it is said to have been discovered by M. F. Devos when travelling for Messrs. Verschaffelt; but it is no doubt (like its congeners) a central American plant, for there is a specimen of it in Lindley's Herbarium collected in Guatemala by Mr. Skinner, under the name of *C. picta*, Batem. MSS. with the note, that it inhabits "a very damp climate" (temp. 68° to 80°)," and is found "in thick fog on trees, also terrestrial." Whether the word "fog" is used in the English sense of visible moisture in the air, or in the Scotch one of moss, may be doubted.

Cælia bella has been long in cultivation; the drawing here given was made from a plant that flowered in Kew in December last.

Descr. *Pseudo-bulbs* one and a half to two inches long, globose or ovoid, somewhat compressed, smooth, green. *Leaves* several, six to ten inches long, elongate ensiform, finely acuminate, three- to five-nerved, striate, pale green, narrowed into long slender ribbed sheaths. *Scape* two to four inches long, clothed with distichous imbricating tumid ovate-lanceolate acuminate brown sheaths. *Flowers* three to four, erect, two inches long. *Perianth* tubular below, funnel-shaped above, yellowish white with rose-purple tips to the segments, and an orange-coloured mid-lobe of the lip. *Dorsal sepal* oblong, obtuse, erect, lateral, produced an inch below the ovary, and there adnate to the produced base of the column. *Lip* erect, slender, gradually dilated upwards into two narrow rounded lateral lobes; mid-lobe tongue-shaped, recurved, subacute, the whole face covered with an orange callus. *Column* slender, top three-toothed. *Pollen masses* eight, in four pairs. *Ovary* nearly an inch long, slender, angles three-winged.—*J. D. H.*

Fig. 1, Column and lip; 2, front, and 3, side view of column; 4, front, and 5, back view of anther-case; 6, two pairs of pollen masses:—*all enlarged.*

M.S.del J.N.Fitch Lith.

Vincent Brooks Day & Son Imp.

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Tab. 6629.

SCROPHULARIA CHRYSANTHA.

Native of Asia Minor.

Nat. Ord. Scrophularineæ.—Tribe Cheloneæ.

Genus Scrophularia, *Linn;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 937.)

Scrophularia (Venilia), *chrysantha;* laxe patentim glanduloso-pilosa, inferne plus minusve lanata, caule robusto folioso, foliis ovato- v. orbiculari-cordatis lobulatis et serrulatis convexis rugosis floralibus amplis, cymis ad apicem caulis dense congestis multifloris, pedunculis foliis floralibus brevioribus, pedicellis calyce brevioribus, calycis glanduloso-puberuli laciniis oblongo-lanceolatis immarginatis, corolla aurea inflata ovoidea ore contracto, lobulis minutis subæqualibus truncatis, filamentis exsertis styloque puberulis glabratisve.

S. chrysantha, *Jaub. et Spach Ill. Plant. Orient.* t. 221; *Boiss. Fl. Orient.* vol. iv. p. 390.

S. minima, *Benth. in DC. Prodr.* vol. xii. p. 303, *non Bieberst.*

S. congesta, *Stev. Enum. Taur.* p. 267.

The genus *Scrophularia*, containing nearly a hundred real or supposed species, presents so little worthy the attention of horticulturists, that the present is the first species that has ever found a place in a volume of either the Botanical Magazine or Register, or indeed of any British or foreign work devoted to the illustration of garden plants.

As a species *S. chrysantha* is closely allied to the European *S. vernalis*, L., differing in habit and in the dense flowered cyme of much larger golden flowers. It was first published by Bentham in De Candolle's "Prodromus," under the name of *S. minima*, Bieberst., from specimens sent from the Caucasus by Prescott. Subsequently Jaubert and Spach pointed out that Bieberstein's *S. minima* was a different plant, much smaller, with a close viscid pubescence and red flowers, and they proposed for this the name it now bears. Its native countries are the Caucasus and Armenia, at Teflis, and Erzeroom. Our plant flowers freely in a cool frame at Kew, in March, as a pot-plant.

June 1st, 1882.

Desce. A stout biennial erect herb, covered with lax soft spreading glandular hairs, often woolly at the base of the stem, which is four-sided. *Leaves* two to three inches broad, ovate- or orbicular-cordate, lobulate and toothed, convex, rugose with strongly impressed nerves, petiole longer than the blade; floral leaves like the cauline, but smaller. *Cymes* densely packed in the upper leaf axils, forming a rounded head two inches in diameter; peduncles much shorter than the floral leaves; pedicels shorter than the calyx. *Flowers* half an inch long, inclined and drooping. *Calyx* cleft three-fourths of the way down into oblong-lanceolate divisions. *Corolla* ovoid, turgid, glabrous, golden yellow, mouth contracted; divisions very small, subequal, broad, retuse. *Filaments* exserted, puberulous or glabrate, as on the ovary and style.—*J. D. H.*

Fig. 1, Calyx and style; 2, anthers; 3, ovary; 4, transverse section of do.:—*all enlarged.*

M S del. J N Fitch Lith.

Vincent Brooks Day & Son Imp.

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TAB. 6630.

DRACÆNA GOLDIEANA.

Native of West Tropical Africa.

Nat. Ord. LILIACEÆ.—Sub-order ASPARAGACEÆ.

Genus DRACÆNA, *Vandelli*; (*Baker in Journ. Linn. Soc.* vol. xiv. p. 523.)

DRACÆNA *Goldieana;* fruticosa, caule erecto simplici, petiolo brevi ascendente deorsum dilatato caulem amplectente, foliis contiguis patulis cordato-ovatis cuspidatis fasciis transversalibus viridibus et albidis pulchris copiosis decoratis, floribus in glomerulos globosos sessiles terminales aggregatis, pedicellis brevissimis, bracteis magnis latis scariosis, perianthii albi pollicaris tubo cylindrico, segmentis lanceolatis tubo paulo brevioribus, staminibus inclusis antheris oblongis albidis versatilibus, stylo demum exserto apice stigmatoso obscure trilobato.

D. Goldieana, *Hort. Bull.; Baker in Journ. Linn. Soc.* vol. xiv. p. 535; *André in Linden Ill. Hort.* New Ser. t. 300.

This is one of the most valuable additions that has been made for a long time to our stock of plants with beautiful foliage suitable for stove cultivation. It was introduced about 1870 from West Tropical Africa by the Rev. Hugh Goldie, of the United Presbyterian Missionary Society, who sent it to the Botanic Garden at Edinburgh. Here it attracted the notice of Mr. William Bull, through whose energy it has been largely propagated and widely dispersed. A very large number of plants to which specific names under the genus *Dracæna* have been given in gardens during the last twenty years are in reality not Dracænas at all, but races or varieties of *Cordyline terminalis*. The present plant is a true *Dracæna*, and is a well-marked new species of the same group as *D. elliptica* (Bot. Mag. Tab. 4787), differing from all its neighbours by its sessile capitate inflorescence. It received a certificate from the Royal Horticultural Society in 1873, but has only been known to flower quite recently. Our drawing was made from a plant that flowered in the Royal Gardens at Kew in March, 1882.

JUNE 1ST, 1882.

Descr. *Trunk* simple, erect, about half a foot long in the flowering specimen drawn. *Leaves* crowded; petiole ascending, one and a half to three inches long, dilated and amplexicaul at the base; blade cordate-ovate, six to nine inches long, three to five inches broad, cuspidate, distinctly costate from base to apex, marbled with irregular transverse bands of bright green and silvery grey in about equal proportions. *Flowers* in a dense globose sessile head a couple of inches in diameter, surrounded on the outside by a few reduced leaves; pedicels very short; proper bracts large, scariose, oblong, cuspidate, clasping the lower part of the flowers. *Perianth* white, above an inch long, the lanceolate spreading segments rather shorter than the subcylindrical tube. *Stamens* inserted at the throat of the perianth-tube, rather shorter than the segments; anthers small, oblong, versatile, cream-white. *Style* finally protruded beyond the tip of the perianth-segments, obscurely three-lobed at the stigmatose tip.—*J. G. Baker.*

Fig. 1, A complete flower; 2, a stamen, viewed from the back; 3, a stamen, viewed from the face:—*all enlarged.*

A.B. del J.N Fitch Lith

Vincent Brooks Day & Son Imp

TAB. 6631.

STACHYURUS PRÆCOX.

Native of Japan.

Nat. Ord. TERNSTRŒMIACEÆ.—Tribe SAURAUJEÆ.

Genus STACHYURUS, *Sieb. et Zucc.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 184.)

STACHYURUS *præcox;* frutex subscandens, glaberrimus, ramulis teretibus flagelliformibus, foliis pendulis petiolatis ovatis v. ovato-lanceolatis tenuiter acuminatis serrulatis nervosis, spicis breviter pedunculatis pendulis, floribus sessilibus bracteatis et 2-bracteolatis, sepalis 4 oblongis, petalis 4 late obovato-spathulatis concavis, staminibus ovario brevioribus, fructibus pedicello post antherum elongato instructis globoso-obovoideis.

S. præcox, *Sieb. et Zucc. Fl. Japon.* p. 43, t. 18; *Franch. et Savat. Enum. Pl. Japon.* vol. i. p. 59; *Carrière in Rev. Hortic.* 1869, p. 200, *cum ic. xylog.*

The genus *Stachyurus* is a very little known and very singular member of the same natural order as the Tea and Camellia plants belong to, and was long supposed to consist of a single species, a native of Japan, that here figured. A second, *S. himalaicus*, was found in the Nepalese Himalaya by Wallich in 1820, and is included in his Catalogue of Indian Plants (n. 7417), where it is noted that it was examined by R. Brown, who failing to discover its affinities, ticketed it "Frutex indeterminatus." The same plant was rediscovered by Griffith in 1838 in Bhotan, and regarded by him as Ericaceous; and lastly by myself in 1849 in Sikkim, where it is common at 5000 to 8000 feet elevation. In habit and foliage the Japanese and Himalayan plants are almost identical, but the former has much larger flowers and longer petioles; the length of the pedicel of the fruit which has been regarded as a difference (being usually shorter in *S. japonicus*) is too variable in both to be relied upon. The most remarkable character in both species is that which misled botanists as to the affinity of the genus, namely, the definite number of stamens, in which *Stachyurus*

differs from all the *Ternstræmiacæ*, indicating, however, no direct affinity with any other order.

S. japonicus is a native of the mountains of Nagasaki, Kinsin, Nippon, Jedo, and other parts of Japan, where it is frequently to be met with in the gardens of the Japanese, and it has also been collected by Wright in the Loochoo Islands. The flowers are described by Oldham as beautiful and yellowish, and the bark as red; neither of which characters obtains in the cultivated specimens, the bark being brown and the flowers yellowish green. It forms a slender straggling bush, ten feet high, in the Temperate house at Kew, flowering in March, but it has not formed fruit.

Descr. A rambling perfectly glabrous shrub, ten feet high, with slender cylindric flexible branches, and pendent branchlets. *Leaves* deciduous, four to six inches long, ovate or ovate-lanceolate, finely acuminate, serrulate, often oblique, bright green, thin and membranous; nerves many, oblique; nervules transverse; petiole half to one and a quarter inch long. *Spikes* axillary, two to three inches long, curved, shortly peduncled, many-flowered; peduncle and rachis stout. *Flowers* one-third of an inch in diameter, subglobosely campanulate, sessile or very shortly pedicelled; bracts small, scale-like, broadly ovate, acute, keeled; bracteoles two, twice as large as the bract, coriaceous, ovate, acute. *Sepals* oblong, two outer small, two inner twice as large. *Petals* broadly obovate-spathulate, concave, much larger than the sepals. *Stamens* eight, hypogynous, shorter than the ovary, filaments slender, the alternate ones shorter. *Anthers* small, didymous. *Ovary* obovoid, obtusely four-angled, contracted into short style; stigma capitate, four-lobed. *Fruit* globose or obovoid, one-third to half an inch long, tipped by the style, pericarp coriaceous, four-celled. *Seeds* very numerous; testa crustaceous, pale brown, shining.—*J. D. H.*

Fig. 1, Flower; 2, two petals, stamens and pistil; 3, petal; 4, stamens and ovary; 5, vertical, and 6, transverse section of ovary; 7, diagram of flower:—*all enlarged.*

6632.

M.S. del. J.N. Fitch Lith

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TAB. 6632.

BILLBERGIA EUPHEMIÆ.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe BROMELIEÆ.

Genus BILLBERGIA, *Thunb. et Holm.* (*Roem. et Schultes Syst. Veg.* vol. vii. p. 71.)

BILLBERGIA *Euphemiæ;* acaulis, copiose stolonifera, foliis 5–6 lanceolatis rigidis suberectis dimidio inferiori arcte convolutis ad apicem sensim angustatis sordide viridibus utrinque tenuiter albo-lepidotis haud fasciatis, aculeis marginalibus minutis deltoideis, pedunculo albo-lepidoto foliis breviori bracteis lanceolatis scariosis obscure rubellis, racemis laxis cernuis 6–12-floris, bracteis inferioribus magnis lanceolatis, ovario oblongo-trigono, sepalis oblongo-lanceolatis subacutis rubellis, petalis lingulatis basi appendiculatis apice splendide violaceis ungue flavo-viridibus, staminibus petalis distincte brevioribus, stigmatibus arcte convolutis.

B. Euphemiæ, *E. Morren in Belg. Hort.* vol. xxii. (1872), p. 11, t. 1–2.

Of all the *Bromeliaceæ*, the greatest favourites with cultivators have been the Billbergias with large persistent violet-tipped flowers and lax drooping or erect racemes. They are all natives of Central and Southern Brazil, where they grow with Orchids and other epiphytes on trunks in the forests. The present plant is a comparatively new species of this group, of which *B. vittata*, *Moreliana*, *macrocalyx*, *Saundersii*, and *iridifolia* are the best-known garden representatives. Its history is not quite clear, but it has been known for some time in the Belgian gardens (where from its copiously-stoloniferous habit it is sometimes called *Billbergia repens*), and it is believed to have been originally introduced by De Jonghe. It was first described and figured in a flowering state by Professor Morren ten years ago, and named in compliment to Madame Morren. We have had it for many years at Kew, and it flowered with us in 1878, and now again in 1882, when the present drawing was made. It grows so freely that I have no doubt it will hold its ground in our conservatories.

JUNE 1ST, 1882.

Descr. Acaulescent, copiously stoloniferous. Produced *leaves* five or six in a closely convolute rosette, which is cylindrical in the lower half, about a foot long, one and a half or two inches broad, horny in texture, narrowed gradually to an acute point, dull green on both surfaces, covered, especially beneath, with a thin layer of white lepidote scales, not at all fasciated, the marginal prickles minute, deltoid. *Peduncle* nearly as long as the leaves, reddish, terete, farinose, furnished with several scariose lanceolate dull reddish bract-leaves. *Flowers* six to twelve in a lax drooping raceme with a mealy flexuose rachis, nearly sessile, the lower ones subtended by large lanceolate scariose bracts, like those of the peduncle. *Ovary* oblong-trigonous, a third or half an inch long. *Sepals* oblong-lanceolate, horny, reddish, subacute, longer than the ovary. *Petals* lingulate, about two inches long, with a greenish-yellow claw, with a pair of small fimbriated basal scales and bright violet-coloured tip. *Stamens* shorter than the petals; anthers linear-oblong, versatile, bright yellow. *Stigmas* protruded beyond the anthers, strongly convolute.—*J. G. Baker.*

Fig. 1, Petal, with stamen, *life size;* 2, a basal scale of the petal; 3 and 4, anthers; 5, stigmas; 6, horizontal section of ovary:—*all enlarged.*

M.S. del. J.N. Fitch Lith.

Vincent Brooks Day & Son Imp.

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Tab. 6633.

COLUMNEA Kalbreyeri.

Native of New Grenada.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Genus Columnea, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1009.)

Columnea (Collandra) *Kalbreyeri*; fere glaberrima, caule robusto tereti, foliis sessilibus valde disparibus subtus sanguineis majoribus elongato-oblongis acuminatis recurvis inæquilateris integerrimis v. serratis, minoribus parvis ovatis acuminatis, floribus magnis aureis in cymas v. fasciculos pauciflores axillares foliaceo-bracteatos dispositis, sepalis ovato-lanceolatis longe-acuminatis integerrimis v. serratis, corollæ tubuloso-infundibulari piloso tubo lato basi sub-geniculato lobis brevibus rotundatis.

C. Kalbreyeri, *Hook. f.*; *Masters in Gard. Chron.*, 1882, pp. 44, 217.

This superb plant belongs to the same division of the genus *Columnea* as *C. aureo-nitens*, Hook., figured at Plate 4294 of this work, and to which the generic name of *Collandra* was given by Lemaire, in the Flora des Serres (1847, under t. 223), but which is rightly referred to a section of the old genus by Bentham in the Genera Plantarum. There is a closely allied species still to be introduced from the base of Chimborazo, which has green leaves with blood-red tips, and there are, no doubt, others in that rich region of vegetation equally worthy of introduction into our stoves.

Columnea Kalbreyeri was discovered by the collector whose name it bears, when travelling for Messrs. Veitch, in the forests of Ciñegetas, province of Antioquia, where it grows on trees. Its discoverer says of the leaves, that they are seen from a far distance, the upper "surface being spotted and marked, the marks shining as if illuminated." The contrast between the brilliant hues of the upper surface, consisting of a bright pale green suffused with yellow in patches, and the opaque glowing blood-red of the under surface, forms one of the most striking of the many com-

binations of colour in the foliage of plants. In a notice of the plant in the "Gardeners' Chronicle," cited above at p. 44, the leaves are inadvertently described as dull green, and mottled with creamy orange on the under surface, and as having green veins.

I am indebted to Messrs. Veitch for the opportunity of naming and figuring this magnificent plant, which flowered in his establishment in January of the present year.

Descr. *Stem* short, somewhat woody below, quite glabrous, cylindric, as thick as the middle finger, pale green. *Leaves* in very close-set imbricating distichous pairs, of which one is small, the other very large, the pairs alternating in respect of their sizes, giving a fan-shaped appearance to the foliage; all are sessile, pale green above, suffused with yellow in patches, and blood-red beneath; larger leaves twelve to eighteen inches long by two and a half to three inches broad, narrowly falcately oblong, recurved or subrevolute, acuminate, unequal-sided below, quite entire or serrated, somewhat keeled beneath, the lateral halves ascending from the midrib with recurved margins, midrib and nerves beneath very stout. *Flowers* in fasciculate leafy cymes three to four inches long, at the axils of the leaves by which they are hid from above; bracts many, yellow-green, or the lower green and red; flowers pedicelled. *Sepals* one to one and a half inch long, elliptic-ovate, long-acuminate, quite entire or serrate, pale yellow, midrib very thick. *Corolla* two to two and a half inches long, broadly tubular, swelling upwards, hairy, golden yellow streaked with red, mouth oblique; lobes subequal, short, rounded, concave. *Filaments* glabrous, united into a tube below. *Disk-gland* very large, semicircular. *Ovary* elongate-ovoid.—*J. D. H.*

Fig. 1, Corolla laid open; 2 and 3, stan ens; 4, stigma; 5, ovary and large disk-gland:—*all enlarged.*

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M. S. del. J.N. Fitch Lith

Vincent Brooks Day & Son Imp

TAB. 6634.

ARISARUM PROBOSCIDEUM.

Native of Southern Italy.

Nat. Ord. AROIDEÆ.—Tribe EUAREÆ.

Genus ARISARUM, *Targ. Tozetti;* (*Endl. Gen Pl.* p. 232.)

ARISARUM *proboscideum;* glaberrimum, folio solitario, petiolo elongato crasso, lamina sagittata obtusa v. apiculata, lobis posticis oblongis obtusis paullo recurvis, pedunculo brevi basi vaginato spatha breviore, spathæ tubo breviter late cylindraceo basi truncato obtuso pallido, lamina olivacea superne late ovata repente incurva et in caudam longissimam proboscideam decurvam dein erectam tubo pluries longiorem desinente, spadice brevi sparsiflora, appendice crassa cylindracea obtusa incurva basi intrusa.

A. proboscideum, *Savi, Bot. Arch.* vol. iv. p. 102, *et observ.* 6, *ex Engler in A. DC. Monogr. Phanerog.* vol. ii. p. 565; *Schott. Meletem.* vol. i. p. 16; *Synops. Aroid.* p. 4; *Prodr. Aroid.* p. 24; *Blume Rumph.* vol. i. p. 91; *Kunth. Enum.* pl. v. vol. iii. p. 15; *Caruel, Prodr. Fl. Tosc.* 666, *et Suppl.* p. 49, *et in Nuov. Giorn. Bot.* vol. xi. p. 7, t. 1; *Parlatore, Fl. Italian,* vol. ii. p. 238.

Arum proboscideum, *Linn. Sp. Pl.* ed. ii. p. 1370 (*Sabbat. Hort. Roman.* vol. ii. t. 78; *Bocconi, Mus. di Piant.* vol. ii. t. 50; *Barrelier Icones,* t. 1150).

This singular plant is the second and only other species of the genus, the type of which, *A. vulgare*, was figured at Plate 6023 of this work. From this latter *A. proboscideum* differs so remarkably in the creeping rootstock (in contrast to the tuberous one of the type) and in the prodigious proboscidiform elongation of the spathe (which is truncate in *A. vulgare*), that it is remarkable that Schott, in his multiplication of the genera of the Order, did not separate the two generically. Schott is, however, one of the few of the notorious multipliers of genera who invariably founded these on definite, though too trivial characters, and his works on *Aroideæ* will always maintain their high character for their accuracy, and for the singularly sagacious views they display of the affinities of the genera of this Order, which is one of the most difficult to analyze from dried specimens, and difficult to classify when analyzed, of

any in the vegetable kingdom. During the revision of the Order for the "Genera Plantarum," I have been throughout impressed with Schott's great excellence as a systematist, his powers of observation, and discernment of affinities.

Arisarum proboscideum is a very rare plant; the only localities assigned to it by Engler are shaded woods of the Upper Arno, and the Apennines, along which range it extends from the far-famed Valle Ombrosa, near Florence, to the latitudes of Rome and Naples.

The specimen here figured came from the rich collection of the late lamented G. C. Joad, Esq., of Wimbledon, which he bequeathed to the Royal Gardens, where it flowered in a cool greenhouse in February last.

Descr. *Rootstock* subterranean, horizontal, creeping, as thick as a goose-quill. *Leaves* solitary or few, each with a short obtuse basal sheath; petiole four to six inches high, stout, cylindric; blade three to four inches long by one to two inches broad, hastate, middle lobe ovate or oblong, obtuse or apiculate, margins recurved, lateral lobes as long as the middle one or shorter, obtuse, rather recurved. *Scape* not half the length of the petiole, stout, with a single basal sheath. *Spathe* erect, one to one and a quarter inch long without the proboscis, which is often five inches long; tube broadly cylindric, rather inflated below, where it is truncate with the scape intruded, pale grey-white; upper part olive-green, horizontal and decurved, narrowed into the proboscis, the filiform apex of which is first decurved, and then ascending becomes very slender and erect; mouth of spathe small, deep olive-purple. *Spadix* included, cylindric, ending in a stout subclavate obtuse club, which is curved within the curved part of the spathe, and the base of which is intruded. *Filaments* very short; *anthers* broadly reniform, one-celled, dehiscence transverse. *Ovaries* very few, at the base of the spadix in front, subglobose, one-celled, with many erect, slender, clavate, orthotropous ovules; style very short, stigma capitate.—*J. D. H.*

Fig. 1, Spadix and flowers: 2, vertical section of appendix; 3 and 4, anthers; 5, ovaries; 6, vertical section of an ovary; 7, ovules:—*all enlarged.*

M S. del. J N Fitch Lith.

Vincent Brooks Day & Son Lith

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Tab. 6635.

TULIPA Borszczowi.

Native of Central Asia.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Tulipa, *Linn.*; (*Baker in Journ. Linn. Soc.* vol. xiv. p. 275.)

Tulipa *Borszczowi;* bulbo ovoideo, tunicis exterioribus intus adpresse pilosis, caule glabro unifloro ½–1½-pedali, foliis 3–4 lanceolatis suberectis glaucis facie canaliculatis margine obscure ciliatis, pedunculo stricto erecto, perianthii saturate lutei segmentis conformibus oblongis cuspidatis basi maculâ parva rubro-brunnea notatis exterioribus dorso rubro suffusis, staminibus perianthio subduplo brevioribus, antheris magnis, filamentis glabris antheris brevioribus, ovario cylindrico-trigono stigmatibus magnitudine mediocribus.

T. Borszczowi, *Regel in Regel et Herder Enum. Plant. Semenoid.* pt. iii. p. 115; *Regel Fl. Turkest.* vol. i. p. 137, tab. xxi. figs. 5–7.

This is another of numerous new tulips discovered by the Russian explorers during their recent investigations in Central Asia. Of familiar types it comes in between *Gesneriana* and *australis*, having the broad glaucous leaves and glabrous filaments of the former, but a perianth in size and colouring more like those of *australis* or *Orphanidea*. It was first gathered by the explorer after whom it is named nearly twenty years ago on the Karakum Steppe near the Sea of Aral, flowering in May. It is figured in Regel's Flora of Turkestan, and no doubt is quite hardy, but as yet we know very little of it in England as a living plant. Our figure is drawn from specimens that flowered at Kew in March of this present year, the bulbs of which were received from Dr. Regel.

Descr. *Bulb* ovoid, about an inch in diameter, with dark-brown membranous outer tunics, thinly coated with adpressed hairs inside. *Stem* erect, glabrous, one-flowered, not more than half a foot long in our specimens, but said to attain a foot or a foot and a half. *Leaves* three or four, lanceolate, suberect, glaucous, channelled down the face,

obscurely ciliate on the edges, the largest four to six inches long by an inch broad. *Peduncle* robust, glabrous, stiffly erect. *Perianth* campanulate, bright yellow, an inch and a half long; segments all six uniform in shape, oblong, cuspidate, half as long as broad, furnished with a small deltoid red-brown blotch at the base, the three outer flushed with red over the back. *Stamens* about half as long as the perianth; anthers bright yellow, nearly half an inch long; filaments shorter than the anthers, without any hairs at the base. *Ovary* cylindrical-trigonous, the three stigmas about as broad as its diameter.—*J. G. Baker.*

Fig. 1, One of the segments of the perianth, *life size;* 2, stamen, viewed from the back; 3, stamen, viewed from the face; 4, pistil:—*all more or less enlarged.*

M. S. del. J. N. Fitch. Lith.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London.

Tab. 6636.

STREPTOCARPUS parviflora.

Native of South Africa.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Genus Streptocarpus, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1023.)

Streptocarpus *parviflora*; foliis plurimis suberectis sessilibus oblongis v. ovato- v. lanceolato-oblongis obtusis crenulatis dense lanuginosis, nervis impressis rugosis scapis gracilibus pilosis plurifloris, bracteis parvis oblongis, calycis pilosi segmentis lineari-lanceolatis, corollæ albæ tubo recto glanduloso-piloso lobis ovato-rotundatis.

S. parviflora, *E. Meyer Zwei Pfl. Docum.* p. 152 (*nomen tantum*), *ex Harv. MSS.*; *C. B. Clarke, Monog. Cyrtandr. in A. DC. Monog. Phanerog. ined.*

The genus *Streptocarpus* comprises plants of very different modes of growth. The type of the genus—the old *S. Rexii*, Lindl. (see our Plate 3005, under *Didymocarpus*)—was introduced in 1826; it resembles the present species in habit, but differs in the single-flowered scapes, which, however, spring from the very bases of the leaf-blade, as in our plant. The next species that flowered in our gardens (in 1855) was the beautiful *S. polyanthus*, Hook. (Plate 4850), which bears a single horizontal leaf, and whose many-flowered scapes arise in succession along a considerable length of the midrib on the upper surface of the leaf; and which further differs from the type species in the almost salver-shaped corolla with a curved tube and obovate crenulate spreading lobes. In the same year, *S. Gardeni*, Hook., flowered (Plate 4862), a many-leaved species, with the scapes more radical, and with the corolla-tube slightly curved, and the limb very distinctly two-lipped. Lastly, in 1861, the most beautiful species hitherto discovered was introduced, the *S. Saundersii*, Hook. (Plate 5251), which has the single horizontal leaf of *S. polyanthus*, with the scapes also arising from along the midrib far into the leaf, but with a corolla more nearly resembling that of *S. Rexii* and *parviflora*.

July 1st, 1882.

All the above species were introduced into cultivation by the Royal Gardens of Kew; but for that here figured we are indebted to the Botanical Gardens of Cambridge, which, under the superintendence of Mr. Lynch, are rapidly obtaining a character worthy of the University for their botanical interest, as well as their horticultural and educational value.

S. parviflora is a native of the mountainous districts of the Cape Colony itself; we have seen herbarium specimens collected near Grahamstown by the late Dr. Pappe; at 3500 feet elevation on Mount Boschberg, by Mr. MacOwan; and near Graaf-Reinet by Mr. Bolus at 3900 feet. In its native country it flowers in September to November, and at Cambridge it flowered in June.

DESCR. *Rootstock* very short. *Leaves* suberect, numerous, tufted, five to nine inches long by one and a half to two inches broad, sessile, oblong or ovate- or lanceolate-oblong, obtuse, crenulate, rugose above from the numerous impressed nerves, densely velvety on both surfaces. *Scapes* longer or shorter than the leaves, numerous, slender, hairy; flowers numerous, subpaniculate; bracts small, obovate-oblong, pedicels slender, and calyx and tube of corolla glandular-hairy. *Calyx-segment* linear-lanceolate. *Corolla* white, with faint purplish streaks on the three lower lobes; tube three-quarters of an inch long, nearly straight, broad but hardly inflated; lobes subequal, rounded, about one-third of the length of the tube. *Stamens* and *Staminodes* as in the Order. *Ovary* glandular-pubescent. *Capsule* one and a half inch long.—*J. D. H.*

Fig. 1, Corolla laid open; 2, calyx and ovary; 3, stigma:—*all enlarged.*

M S del J N Fitch Lith

Vincent Brooks Day & [illegible]

L Reeve & Cº London

Tab. 6637.

PONTHIEVA maculata.

Native of Venezuela.

Nat. Ord. Orchideæ.—Tribe Neottieæ.

Genus Ponthieva, *Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 593, *ined.*)

Ponthieva *maculata;* pilis patentibus elongatis laxe villosa, foliis sessilibus v. in petiolum angustatis lineari-oblongis acuminatis, scapo valido, spica multiflora, bracteis ovato-oblongis lanceolatisve, floribus horizontalibus, ovario bracteis 2–3-plo longioribus hirsutis, sepalo dorsali anguste ovato-lanceolato, lateralibus duplo majoribus erecto patentibus late ellipticis albis brunneo maculatis longe ciliatis, petalis parvis ab apice columnæ gracilis pendulis dimidiato-ovatis unguiculatis parallelis marginibus rectis contiguis, labello minuto excavato.

P. maculata, *Lindl. in Ann. Nat. Hist.* vol. xv. p. 385; *The Gardeners' Magazine*, vol. i. (1850) p. 248; *N. E. Brown in Gard. Chron.* 1882, p. 496.

Schonleinia benigna, *Klotzsch MSS.*

This is, so far as can be determined by Herbarium specimens and the few species that have already flowered in this country, the handsomest except one of the curious genus of terrestrial Orchids to which it belongs, all but that one of the others (a fewer, but much larger flowered species found by Jamieson in the Quitenian Andes) being in comparison insignificant plants. The genus itself was founded by R. Brown in the second edition of Hortus Kewensis (vol. v. p. 199), upon a West Indian plant figured nearly eighty years ago in this work as *Neottia glandulosa* (Plate 842), since which nearly twenty species have been added to the genus, natives chiefly of Venezuela and the United States of Colombia. *P. maculata* is not new to cultivation, for a reduced woodcut figure of it was published upwards of thirty years ago in the "Gardeners' Magazine" (cited above), where, however, it is not stated how it was introduced, nor when it flowered.

Mr. N. E. Brown, in an excellent description which he has given of the plant in the "Gardeners' Chronicle," observes that from the centre of each of the spots on the

sepals there arises a perfectly transparent glossy appressed clavate hair, which can scarcely be perceived except under a lens.

Ponthieva maculata has rather a wide range in geographical distribution; there are in the Herbarium dried specimens from an elevation of 6000 to 7000 feet on the Silla de Caraccas in Venezuela, collected by Linden, Crueger, and Fendler; and from Colombia by Hartweg, as also by Funck and Schlim, at an elevation of 7500 feet, in the province of Pamplona. Linden describes the foliage as resembling that of *Arnica montana*, and the lower sepals as white spotted with red, and the petals as white streaked with rose, colours hardly consistent with those of the cultivated specimens.

A. maculata flowered at Kew in March of the present year from plants purchased at Stevens' auction rooms.

Descr. Whole plant covered sparsely with long spreading flaccid hairs. *Roots* of stout fleshy fibres. *Leaves* a foot long and less, sessile or narrowed into a petiole, from elliptic-lanceolate to narrowly oblong-lanceolate, acuminate, pale green, with few nearly longitudinal nerves. *Scape* stout, erect, longer than the leaves, bearing two or three short appressed acute green sheaths, and a lax raceme-like spike of horizontal flowers. *Bracts* ovate-lanceolate, much shorter than the slender strict ovaries, which are one inch long. *Flowers* three-quarters of an inch across the sepals; perianth widely spreading, with the minute lip upwards. *Dorsal-sepals* inferior, ovate-lanceolate, acute, pale brown with darker streaks; lateral sepals twice as large, broadly elliptic, long-ciliated, white with brown spots. *Column* slender, projecting forwards, bearing at its extremity the two petals which hanging down in front resemble a lip. *Petals* dimidiate-ovate, parallel and close together, clawed, yellow with red-brown streaks. *Lip* very small, fleshy, reflected, tongue-shaped, acute, curved, concave. *Stigma* concave, with membranous walls.—*J. D. H.*

Fig. 1, Top of column, two petals, tip, and (at the top) the lower part of the column; 2, anthers; 3, pollen:—*all enlarged.*

2

5

1

3

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A.B. del, J.N. Fitch Lith

Vincent Brooks Day & Son Imp

TAB. 6638.

HEDYCHIUM GRACILE.

Native of the Himalaya and Khasia Mountains.

Nat. Ord. SCITAMINEÆ.—Tribe ZINGIBEREÆ.

Genus HEDYCHIUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 642 ined.)

HEDYCHIUM *gracile;* glabrum, pallide glauco-virescens, foliis supra vaginam breviter petiolatis lanceolatis acuminatis, vaginarum auriculis brevibus rotundatis, spica elongata erecta cylindracea densiflora, rachi pubescente v. glabrata, bracteis lineari-oblongis obtusis glandulosis v. eglandulosis 1-2-floris, calycis membranacei ore valde obliquo apice barbellato, corollæ albæ tubo tenui $\frac{1}{2}$–$\frac{3}{4}$-pollicari calyce vix duplo longiore, laciniis filiformibus, staminodiis (petalis interioribus) linearibus, labello angusto 2-lobo lobis angustis acutis, filamento rubro.

H. gracile, *Roxb. Hort. Beng.* p. 1; *Fl. Ind.* vol. i. p. 15; and *Ed. Carey et Wall.* vol. i. p. 12; *Corom. Pl.* vol. iii. p. 48; *Wall. in Hook. Kew Journ. Bot.* vol. v. p. 367 (1853); *Horaninov, Prodr. Monog. Scitam.* p. 25; *Wall. Cat.* 6543.

H. glaucum, *Roscoe Monand. Pl., Hedych.* n. 3.

H. viridiflorum, *Clarke MSS.; Gard. Chron.* 1881, part 2, p. 406.

Since the publication of the magnificent work on Scitamineous plants of W. Roscoe, of Liverpool (better known as the erudite author of the life of Lorenzo de Medici), little has been done towards the illustration in this country of the beautiful Indian genus *Hedychium*. Seventeen species are figured in the above-named work, chiefly from specimens sent by Wallich from the Calcutta Botanical Gardens, and all of them from plants cultivated in those of Liverpool, and about half that number have appeared in this Magazine; but it is upwards of thirty years since the last of the latter was published (*H. chrysoleucum*, Hook., tab. 4576). Since the date of Roscoe's work many species have been added to the genus, and most of these are included in Wallich's "Initiatory attempt to define the species of *Hedychium*, and settle their synonymy," published in the "Kew Journal of Botany," vol. v., t. 321 (1853). In this summary *H. glaucum* of Roscoe is reduced to *H. gracile*,

Roxb., in which I entirely concur, though the plant is not nearly so glaucous as a smaller species which I found, also in the Khasia Mountains, and which is undescribed. I have not quoted the figure of the flower referred to by Roxburgh in his Coromandel plants (t. 251, right-hand corner), because it is so bad a representation, if indeed really belonging to this plant.

H. gracile was introduced into England by Dr. Wallich in 1820, who sent plants to Lord Milton, by whom it was communicated to Mr. Shepherd, of the Liverpool Botanical Gardens, where it flowered in 1822. It is a native of the Nepalese and Sikkim Himalaya and of the Khasia Mountains, in both of which I have gathered it at elevations of 3000 to 5000 feet. The specimen here figured flowered at Kew in September last from plants communicated by Mr. Elwes from Sikkim.

Descr. Whole plant a pale glaucous green colour, glabrous except the often pubescent rachis of the spike. *Stem* slender, two to three feet high. *Leaves* five to nine inches long by two to three inches broad, finely acuminate, base acute, narrowed into a petiole one-half to three-quarters of an inch long. *Sheath* long, compressed, auricles at the top short, rounded. *Spike* five to seven inches long, by one and a half to two and a half inches in diameter, exclusive of the stamens; rachis pubescent or nearly glabrous; flowers suberect, white with the filament red. *Bracts* one-half to three-quarters of an inch long, slender, cylindric, obtuse, glabrous; inner bract shorter, tubular, very membranous. *Calyx* tubular, membranous, shorter than the bracts, mouth obliquely truncate. *Corolla-tube* two-thirds to three-quarters of an inch long, about one-third longer than the outer bract; lobes three, filiform, longer than the tube. *Staminodes* (or inner petals) linear, acute, shorter than the petals. *Lip* linear oblong, cleft into two semi-lanceolar acute diverging lobes. *Stamen* projecting one to one and a half inch beyond the perianth-tube; filament convolute, red; anther linear. *Stigma* turbinate, truncate. *Ovary* hairy, subglobose.—*J. D. H.*

Fig. 1, Vertical section of flower and inner bract (calyx omitted); 2, upper part of corolla; 3, stylode from top of ovary; 4, top of style and stigma; 5, transverse section of ovary:—*all enlarged.*

6639.

1.

2.

M S & L. N. Fitch lith.

Ancent Brooks Day & Son imp.

L Reeve & Co London

TAB. 6639.

TULIPA DIDIERI.

Native of Savoy and Italy.

Nat. Ord. LILIACEÆ.—Tribe TULIPEÆ.

Genus TULIPA, *Linn.*; (*Baker in Journ. Linn. Soc.* vol. xiv. p. 275.)

TULIPA *Didieri*; subinodora, bulbo magno ovoideo tunicis exterioribus brunneis intus subglabris vel parce pilosis, caule stricto glabro unifloro pedali vel sesquipedali, foliis 3–4 oblongo-lanceolatis vel lanceolatis glauco-viridibus glabris, perianthii campanulati splendide coccinei segmentis basi maculâ magna purpurea flavo marginata præditis exterioribus oblongis subacutis interioribus obovato-oblongis cuspidatis, staminibus perianthio triplo brevioribus antheris filamento glabro subæquilongis, ovario trigono stigmatibus magnis.

T. Didieri, *Jordan Fragm.* vol. i. p. 36, t. 5, f. A; *Jord. et Fourr. Ic.* p. 8, t. 17; *Baker in Journ. Linn. Soc.* vol. xiv. p. 283.

T. Fransoniana, *Parlat. Nuov. Gen.* p. 15; *Flora Ital.* vol. ii. p. 392; *Baker in Gard. Chron.* 1878, p. 756.

T. Gesneriana, *Bellardi App. Fl. Ped.* p. 226, *non Linn.*

This is one of the finest of all the known Tulips. It is closely allied to *T. Gesneriana*, with which it agrees in general habit, leaves and bulb. It differs by the segments of the perianth being narrower and more pointed, and especially by their being furnished at the base with a large cuneate purple blotch with a yellow border, which covers the whole of the claw. It has long been known to inhabit cultivated fields in the neighbourhood of St. Jean de Maurienne, in Savoy, and I cannot separate from the Savoy plant by any tangible character the Florentine *T. Fransoniana* of Parlatore. There are three other Tulips which grow along with it in Savoy (*T. mauriana*, *planifolia*, and *Billietiana*), which have been described and figured as species by Jordan, but which come so near to it that I have regarded them as varieties in the paper above cited. Our plate was drawn from a plant which flowered in Kew Gardens in the herbaceous ground towards the end of May last year.

AUGUST 1ST, 1882.

Descr. *Bulb* ovoid, an inch in diameter, the outer brown membranous tunics scarcely at all hairy inside. *Stem* erect, glabrous, one-flowered, a foot or a foot and a half long. *Leaves* three or four to a stem, rather glaucous, not hairy on the margin, the lower oblong-lanceolate, acute, half a foot long, one and a half or two inches broad, the others lanceolate, about an inch broad. *Perianth* erect, campanulate, bright crimson, two or two and a half inches long; segments an inch and a quarter or an inch and a half broad, with a large cuneate purple blotch with a yellow border covering the whole claw to a height of nearly an inch; three outer segments oblong, subacute; three inner rather broader, obovate-oblong, cuspidate. *Stamens* about an inch long, the same purple as the blotch of the claw of the perianth-segments; anthers about as long as the glabrous filament. *Pistil* a third as long as the perianth; ovary greenish, trigonous, a sixth of an inch in diameter; stigmas large, deeply channelled. Scent of the flower very faint.—*J. G. Baker.*

Fig. 1, Blotch of the claw of the perianth-segments; 2, pistil :—*both life-size.*

5. 4 3 2 1

A.B. del. J.N.Fitch. lith

Vincent Brooks Day & Son Imp

L Reeve & Co London

Tab. 6640.

SAXIFRAGA Camposii.

Native of Spain.

Nat. Ord. Saxifragaceæ.—Tribe Saxifrageæ.

Genus Saxifraga, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 635.)

Saxifraga *Camposii;* dense cæspitosa, foliis laxe rosulatis sparse laxe pilosis carnosulis petiolo lato nervoso, limbo flabelliformi 3–5-lobo lobis integris, v. latiore lobis 2–3-fidis, ramis floriferis glabris v. parse glanduloso-pilosis, pedunculis subcorymbosis pedicellis ovariisque globosis densius glanduloso-puberulis, floribus ⅔-poll. diam. inclinatis, sepalis oblongo-lanceolatis ovario longioribus, petalis spathulatis albis staminibus duplo longioribus, antheris flavis, stylis gracilibus fere rectis stigmatibus oblongo capitatis.

S. Camposii, *Boiss. et Reut. Pugill.* (1852), p. 47; *Willk. Ill. Fl. Hisp.* p. 38, t. 32, A B; *Willk. et Lange, Prodr. Fl. Hisp.* vol. iii. p. 112; *Engler, Monog. Gatt. Saxif.* p. 168.

S. Almeriensis, *Willk. ined. Pl. Exsicc.* (1845), no. 1224.

S. Wallaceana, *Hort.*

There is no more difficult group of plants to discriminate specifically than the Dactyloid Saxifrages; many of the forms are exceedingly local; they are only just distinguishable when compared from their native habitats; they vary more or less in habit under cultivation, without absolutely "running into" one another; and in the dried state they lose much of the character they showed when living. *S. Camposii* is no exception to this statement; according to Willkomm its nearest affinity is with *S. trifurcata*, Schrad. (Bot. Mag., t. 1651), and *S. cuneata*, Willd., but to me it appears to be scarcely distinguishable from *S. Maweana*, Baker (Bot. Mag., t. 6384), except in the smaller leaves, which seem never to assume the reniform shape. It is true that, judging by the dried native specimens, *S. Camposii* is a stouter, more rigid species, with a more crowded rosette of leaves, and shorter peduncles and pedicels, but under cultivation these differences are so considerably modified, that the two plants may not unreasonably be regarded as

geographical forms, one inhabiting the southern mountains of Spain, the other the northernmost ones of Marocco. The *S. maderensis* represents the same type in its western limit of growth, the Island of Madeira; the *S. cuneata* of the Pyrenees represents its northern limit within the Peninsular area; within that area occur the equally or indeed more closely connected forms of *S. obscura*, Gren. and Godr., and *S. canaliculata*, Boiss. and Reut.; and it would not be difficult to connect all with the forms that occur under other names elsewhere in Western Europe.

The size of the flowers, no less than the habit, recommend *S. Camposii* for cultivation in the rock-garden, along with its numerous allies. The specimen here figured flowered at Kew in May of this year, where it has been in cultivation for many years.

Descr. Densely tufted, bright green, forming large patches, more or less hairy on the leaves and glandular in the inflorescence. *Leaves* very variable, a quarter to half an inch in diameter, flabellately three- to five-cleft, with simple obtuse or subacute teeth, or broader and deeply three- to five-lobed, with the lobes three or more toothed; petiole one-half to one inch long, broad, flat, strongly ribbed when dry. *Flowering stems* three to four inches high, rather stout, glabrous or sparsely glandular; peduncles and pedicels glandular-pubescent, slender. *Flowers* corymbose, two-thirds of an inch in diameter, inclined. *Ovary* nearly globose, densely glandular. *Sepals* oblong-lanceolate, subacute, longer than the ovary. *Petals* spathulate, white, twice as long as the stamens, tip rounded. *Anthers* yellow. *Styles* slender; stigma oblong-capitate.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, ovary and stamens; 3, stamens; 4, style; 5, transverse section of ovary:—*all enlarged.*

1.

2.

M.S del. J.N Paton lith

Vincent Brooks Day & Son Imp

Tab. 6641.

BESCHORNERIA BRACTEATA.

Native of Mexico.

Nat. Ord. Amaryllidaceæ.—Tribe Agaveæ.

Genus Beschorneria, *Kunth;* (*Kunth Enum.* vol. v. p. 844.)

Beschorneria *tubiflora;* acaulis, foliis circiter 30 lanceolatis pedalibus vel sesquipedalibus glauco-viridibus margine scabris, pedunculo valido 2–3-pedali, floribus in paniculam rhomboideam ramis corymbosis dispositis, pedicellis ovario sæpe æquilongis, bracteis conspicuis scariosis rubellis oblongo-lanceolatis vel lanceolatis, perianthii segmentis oblanceolatis obtusis ovario 1½–2-plo longioribus, genitalibus limbo æquilongis.

B. bracteata, *Jacobi Index Agaveen.* p. 11 (*nomen solum*).

This is the most robust and copiously floriferous of all the Beschornerias which we had in a living state at Kew. The species of this genus seem to be very closely allied to one another, and a monograph of them is greatly needed. In his catalogue of the Agaveæ, General Von Jacobi enumerates nine species, but his monograph of the suborder never reached this genus, and so far as I am aware only three out of the nine, all of which have been figured in the Botanical Magazine (viz. *tubiflora*, tab. 4642, *yuccoides*, tab. 5203, and *Toneliana*, tab. 6091), have ever been described or characterized. Our drawing was made from a plant which has been for a long time in the Kew collection, which flowered for the first time in the month of March of this present year.

Descr. Acaulescent. *Leaves* about thirty in a dense rosette, a foot or a foot and a half long, two inches broad at the middle, contracted to less than an inch above the dilated base, thin but firm in texture, glaucous green, scabrous on the margin. *Inflorescence* four to five feet long, including the robust peduncle, which is terete, reddish-brown, about as long as the panicle, and furnished with three or four

adpressed lanceolate bract-leaves. *Panicle* rhomboid, the branches many-flowered and corymbose, the central ones eight or nine inches long, subtended by large scariose reddish bracts; pedicels half or three-quarters of an inch long; ultimate bracts oblong or lanceolate, about as long as the pedicels. *Ovary* trigonous, three-quarters of an inch to an inch in length; limb an inch and a half long, the oblanceolate obtuse segments free to the base, but permanently connivent, at first green, but turning yellowish-red when mature. *Stamens* and pistil as long as the perianth-segments; filaments thickened above the base.—*J. G. Baker.*

Fig. 1, Stamens and pistil; 2, pistil complete :—*both enlarged.*

6612.

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

J. Reeve & Co. London.

Tab. 6642.

SONCHUS Jacquini.

Native of the Canary Islands.

Nat. Ord. Compositæ.—Tribe Cichoriaceæ.

Genus Sonchus, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 528.)

Sonchus *Jacquini*; sparse albo-lanatus, caule 1–2-pedali robusto confertim folioso basi fruticoso, foliis sessilibus lineari-oblanceolatis acuminatis ad medium v. infra pinnatifidis, lobis triangularibus acutis decurvis spinuloso-ciliatis, capitulis corymbosis v. subumbellatis, involucri bracteis adpressis exterioribus ovato-rotundatis, interioribus lineari-oblongis obtusis, acheniis obovoideis atris sulcatis.

S. Jacquini, *DC. Cat. Hort. Monsp.* 1813, p. 147; *Prodr.* vol. vii. p. 188, *excl. var.* β; *Webb et Berth. Phyt. Canar.* pars ii. p. 428, t. 132.

S. fruticosus, *Jacq. Coll.* vol. i. p. 83 (*non Linn.*); *Ic. Rar.* vol. i. t. 161, *excl. Syn.*

S. macranthus, *Poir. Suppl.* vol. iii. p. 289.

The Canary Islands are remarkable for the number of handsome species of *Sonchus* which they contain; and of which but few have as yet been in cultivation in England; one alone, *S. radicatus* (Tab. 5211), is figured in this Magazine. As in the case of various other genera of what are herbaceous plants on the Continents, many of the *Sonchi* of the Canaries are suffrutescent or even frutescent, the base of the stem becoming woody and perennial.

S. Jacquini is a native of rocky places in the "Laurel region" of the Island of Teneriffe, where it was discovered by Masson, a collector for the Royal Gardens of Kew, who in 1779 sent seeds to the Imperial Garden of Schœnbrun (Vienna), which produced the specimen well figured by Jacquin. Its native name is "Lachuza de Pastor," or Pastor's Lettuce, whence it is to be inferred that it is available as a salad; it is however described by Webb as being very bitter. Our specimen was raised from seeds brought in 1880 by Mr. Perez from M. Wildpret, of the Botanic Gardens of Orotava; they flowered in March, 1882, in a

cool greenhouse, and formed a most ornamental feature from the size and brilliant colouring of the heads.

Descr. A stout erect sparingly branched herb, with a woody stem below, one to two feet high; sparingly clothed here and there with patches of snow-white wool; stem at the lower part as thick as the thumb, herbaceous branches as thick as a goose-quill. *Leaves* crowded, six to twelve inches long, by two to three broad, spreading and recurved, deep green above, paler beneath, lower sessile, upper deeply cordate and half-amplexicaul, oblanceolate, pinnatifid to about or beyond the middle, denticulate and ciliate; lobes triangular, acute, with rounded sinus, drooping; nerves horizontal. *Heads* two to three inches in diameter, deep golden-yellow; involucre one-half to three-quarters of an inch in diameter, shortly urn-shaped, green; bracts appressed, slightly woolly, outer rounded-ovate very obtuse, inner oblong or linear-oblong, obtuse. *Corolla* with a long very slender hairy tube, and linear ray toothed at the tip. *Achenes* one-sixth of an inch long, narrowly obovoid or pear-shaped, with five deep longitudinal furrows, otherwise smooth or very obscurely tubercled, quite black; pappus very soft and white.—*J. D. H.*

Fig. 1, Flower; 2 and 3, arms of style; 4, hairs of pappus:—*all enlarged.*

M. S. del, J.N Fitch Lith

Vincent Brooks Day & Son Imp

TAB. 6643.

IMPATIENS SULTANI.

Native of Zanzibar.

Nat. Ord. GERANIACEÆ.—Tribe BALSAMINEÆ.

Genus IMPATIENS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 277.)

IMPATIENS *Sultani;* glaberrima, caule erecto ramoso ramisque robustis teretibus, foliis alternis longe petiolatis ovato-lanceolatis acuminatis basi acutis crenato-serratis sinubus setiferis, floribus axillaribus solitariis rarius in pedunculo communi 2–3-nis coccineis, bracteis minutis, sepalis parvis lanceolatis, vexillo obovato-rotundato retuso, alis 2-partitis segmentis æqualibus cuneato-obovatis vexillo paullo majoribus, labio parvo lanceolato in calcar gracillimum curvum abrupte contracto.

The mountains of India were long supposed to be the head-quarters of the Balsams, no less than 125 species, together with many varieties, having been described from that region. There are, however, indications of Tropical Africa proving a rival for this honour; for though owing to the fragile and membranous nature of the species, and their fugacious flowers, they are of all plants the most difficult to preserve in a dried state, and though the climate of Africa is most unpropitious to their being so preserved, no less than seventeen species are already described from that botanically unexplored country, in Oliver's "Flora of Tropical Africa." Of these, only one has hitherto been figured in Europe, the *I. bicolor* (Plate 5366), a very handsome plant, native of the mountainous Island of Fernando Po and the Cameroons Mountains. The subject of the present plate is the second which has flowered in this country, and for gorgeous colouring and profuse flowering it is not surpassed by any of its congeners. As a species it comes very near to (and is possibly a form of) *I. Walleriana*, Hook. f., a native of the Mozambique district, at an elevation of 2000 feet, but it differs from that plant in the retuse standard, shorter spur, and axillary scarlet

flowers, which are not umbelled at the end of a long peduncle.

I. Sultani is one of the numerous and not the least beautiful of the discoveries of Sir John Kirk, K.C.M.G., Political Resident at Zanzibar, whose scientific labours, first as the companion of Livingstone on his second expedition, and since in his official capacity, has thrown more light on the Flora of Eastern Tropical Africa than all other explorers put together. I have named it in honour of that distinguished potentate, the Sultan of Zanzibar, to whose enlightened and philanthropic rule Eastern Africa owes so much.

Descr. A glabrous, erect, branched, rather succulent herb; stem and branches stout, terete, green. *Leaves* two to three inches long, ovate-lanceolate, acuminate, base acute, crenate-serrate with a bristle in the angle of every serrature, pale green, base narrowed into a petiole three-quarters to one and a half inches long. *Flowers* solitary and axillary, or two to three on very short peduncles, one to one and a half inches in diameter; bracts minute. *Sepals* small, lanceolate, acuminate. *Petals* quite flat, scarlet; dorsal (or standard) obovate-orbicular retuse, rather smaller than the others; lateral petals (or wings) cleft to the base into obovate-cuneate equal flat lobes. *Lip* not half the length of the petals, lanceolate in outline, suddenly contracted into a slender up-curved spur as long or twice as long as the petals.—*J. D. H.*

Fig. 1, Portion of margin of leaf; 2, lip with its spur and two sepals at its base; 3, stamens before the dehiscence of the anthers; 4, the same after dehiscence; 5, ovary:—*all enlarged.*

M.S.del, J.N.Fitch.lith

Vincent Brooks Day & Son Imp

Tab. 6644.

BACULARIA MONOSTACHYA.

Native of New South Wales.

Nat. Ord. Palmeæ.—Tribe Areceæ.

Genus Bacularia, *F. Muell.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. ined..)

Bacularia *monostachya*; caudice gracili erecto, foliis gracile petiolatis æqualiter pinnati-partitis, segmentis 4–6-jugis lineari-oblongis basi lata oblique insertis, oppositis et alternis apice truncatis et inciso-dentatis plicato-nervosis glaberrimis, petiolo basi in vaginam apice 2-lobam dilatato, spadicibus numerosis interfoliaceis longe pedunculatis simplicibus gracilibus patenti-recurvis, floribus 3-nis laxe undique insertis, spatha lineari membranacea completa, fl. masc. precocioribus symmetricis ovoideis, sepalis rotundatis, petalis ovatis acutis valvatis crasse coriaceis, staminibus 6–10; fl. fœm. masculis multo minore inter 2 masculis nidulante globoso, sepalis rotundatis, petalis paullo longioribus ovatis acutis imbricatis, staminodiis dentiformibus, ovario ovoideo stigmatibus 3 sessilibus.

B. monostachya, *F. Muell. Fragment.* vol. vii. p. 103.

Linospadix monostachyos, *Wendl. et Drude in Linnæa*, vol. xxxix. p. 198.

Areca monostachya, *Mart. Hist. Nat. Palm.* vol. iii. p. 178, t. 155, f. 4.

Kentia monostachya, *F. Muell. Fragment.* vol. vii. p. 82; *Benth. Fl. Austral.* vol. vii. p. 136.

One of the smallest Palms of the Old World, confined to the East Coast of Tropical Australia, where it inhabits humid forests from Northern New South Wales to Cape York, and is known by the name of "The Walking-stick Palm," in allusion to its slender stem, which attains six to eight and even twelve feet high, with a thickness rarely exceeding that of the thumb. From the summit of the stem rises a plume of deep green leaves three to five feet in diameter, and mixed with these are the numerous slender whip-like spadices. Though usually cultivated in a tropical house, this Palm succeeds well in a warm greenhouse, flowering profusely, but it has never ripened its fruit at Kew. The female flowers are extremely minute at the time the male are fully developed, being scarcely bigger than a pin's head, and are solitary between every two of the males.

September 1st, 1882.

The "Walking-stick Palm" was, as I am informed by the late Curator, originally introduced into the Royal Gardens in 1824 or 1825, by its discoverer, the late Allan Cunningham, Superintendent of the Botanic Gardens of Sydney; and it has since that period been sent by Mr. Walter Hill, who was long the Superintendent of the Brisbane Botanical Gardens. It flourishes in the Palm-house and Begonia-house, requiring no great heat, and flowering copiously throughout the year.

Descr. *Caudex* four to twelve feet high, very slender, green, ringed, giving off aerial roots from near the very base; clothed below the leaves with the persistent old leaf-sheathes. *Leaves* very numerous, terminal, spreading and recurved, two to four feet long by one to one and a half feet broad, equally pinnatisect; segments four to six pairs, alternate, ligulate, attached by a broad oblique base, plaited and many-nerved, tip truncate and toothed or incised, dark green, quite glabrous; petiole slender, shorter than the blade, sheath oblong-lanceolate, keeled, green, rigid, two-auricled at the top. *Spadices* numerous from amongst the leaves and as long as these, very slender, spreading and drooping; peduncle long, slender, as long as the flowering portion. *Spathe* as long as the spadix and enclosing it when full grown, then bursting vertically throughout its whole length, and deciduous, membranous. *Flowers* in threes (of two males and one female) loosely inserted all round the terete spadix, green. *Male flower* sessile, ovoid, acute, terete. *Sepals* rounded, scarious, closely imbricating round the base of the corolla. *Petals* three, thickly coriaceous, ovate-oblong, acute, valvate. *Stamens* six to ten. *Female flower* minute, globose. *Sepals* broader than long, closely imbricating. *Petals* larger than the sepals, rounded, obtuse. *Ovary* obovoid, with one cell and basal ovule, and three sessile stigmas.—*J. D. H.*

A, whole plant, *reduced;* B, spadix, *of the natural size.* Fig. 1, portion of spadix and flowers; 2, ♂ fl.; 3, sepal; 4, petal; 5 and 6, stamen of the same; 7, ♀ fl.; 8, outer sepal; 9, petal; 10, ovary; 11, vertical section of ditto:—*all enlarged.*

A.B del.J.N.Fitch lith

Vincent Brooks Day & Son Imp

Tab. 6645.

PÆONIA Wittmanniana.

Native of the Caucasus and Armenia.

Nat. Ord. Ranunculaceæ.—Tribe Pæonieæ.

Genus Pæonia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 10.)

Pæonia *Wittmanniana*; herbacea, foliis biternatis subtus discoloribus pilis elongatis flexuosis laxe vestitis, foliolis distinctis ovatis oblongis v. obovatis, lateralibus basi acutis rotundatis v. dilatatis et cordatis, terminali basi cuneato, floribus amplis pallide ochroleucis virescenti-stramineis v. fere albis, ovariis 2–3 glaberrimis.

P. Wittmanniana, *Stev. in Ann. Sc. Nat. Ser.* 3, vol. xii. p. 374; *Boiss. Fl. Orient.* vol. i. p. 97; *Bot. Reg.* vol. xxxii. t. 9; *Annales de Gand*, 1846, t. 64.

The Pæonies form a notoriously variable genus of plants, and many species have been made on insufficient characters, especially out of the forms of the common *P. corallina*. I have given some observations on a few of these under the Himalayan *P. emodi* (Plate 5719), a reference to which will show how little there is to separate it and *P. albiflora* (Plate 1756), of Siberia, from this Caucasian plant, which, as Boissier remarks, is closely allied to *P. corallina*, differing in the colour of the flower and the glabrous carpels.

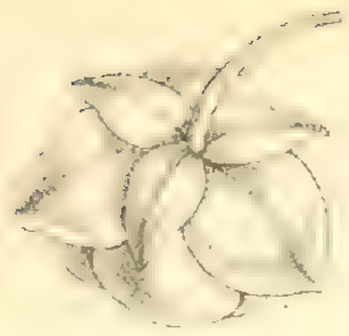
This, the first and only yellow-flowered (so-called) Pæony, was introduced into the Horticultural Society's Gardens so long ago as 1842, from the Imperial Gardens of Nikitz in the Crimea, shortly after its discovery by Count Woronzoff in Abcharia, who at the same time procured the now well-known *Abies Nordmanniana* and *Epimedium pinnatum*. (Letter from Dr. Fischer, of St. Petersburg, to Sir W. Hooker; see Hooker's "London Journal of Botany," 1842, p. 207). It was named after Mr. Wittmann, a traveller in the Tauran Caucasus, who was afterwards gardener at Odessa. Dr. Lindley, who is my authority for this statement, says that twenty-five guineas were demanded for a

single plant of it by one of the great Continental Nurseries; he adds that it has much the appearance of *P. cretica*, and is quite hardy, flowering in May.

P. Wittmanniana is a native of cool shaded forests in the Caucasus and Armenia; also of North Persia, according to Bossier, who gives Asterabad as a habitat on the authority of Bunge; but Bunge's Asterabad plant, so named by himself, and which he communicated to the Hookerian Herbarium, cannot be this species, having very woolly carpels. The true plant is, however, in the same Herbarium, collected in the Caucasus by Frick.

Descr. A herbaceous perennial, two to three feet high. *Stem* and *branches* smooth, green, glabrous. *Leaves* four to eight inches long, biternately compound; leaflets very variable in size and shape, one to three inches long, pale green and glabrous above, rather glaucous beneath and clothed sparingly with lax soft curly white hairs; lateral leaflets sessile or petiolate, usually obliquely ovate or ovate-cordate, acute, base often unequally dilated; terminal larger, petiolate, ovate or oblong, acute, base cuneate, rarely rounded. *Flowers* solitary, four inches in diameter, white or very pale yellowish or greenish. *Sepals* very irregular in size and shape, concave, green. *Petals* about seven, broadly elliptic-obovate, concave, membranous. *Disk* narrow, red, not prominent. *Stamens* with slender red filaments and orange-yellow anthers. *Carpels* two to three, oblong-ovoid, from a broad sessile base, not immersed deeply in the disk, quite glabrous; stigmas recurved.—*J. D. H.*

Fig. 1, Calyx, disk, and carpels; 2, stamens; 3, vertical section of carpel and peduncle; 4, transverse section of carpel:—*all enlarged.*



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TAB. 6646.

BERBERIS THUNBERGII.

Native of Japan.

Nat. Ord. BERBERIDEÆ.—Tribe BERBEREÆ.

Genus BERBERIS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 43.)

BERBERIS *Thunbergii*; frutex humilis, dumosus, glaberrimus, ramis breviusculis robustis strictis profunde sulcatis, spinis mediocribus simplicibus, foliis parvis obovatis v. spathulatis integerrimis apice rotundatis v. apiculatis, nervis obscuris, floribus solitariis v. 2-nis rarius breviter umbellatis, pedicellis gracillimis foliis sæpissime brevioribus v. subæquantibus, sepalis 3–4 exterioribus æqualibus ovatis acutis rubris petalis dimidio brevioribus, petalis pallide stramineis rubro tinctis 4 exterioribus elliptico-rotundatis, interioribus obovato-rotundatis, ovario ellipsoideo, stigmate sessili late orbiculari, baccis subglobosis stigmate sessili.

B. Thunbergii, *DC. Syst. Veg.* vol. ii. p. 9; *Prodr.* vol. i. p. 106; *Regel, Descr. Pl. Nov. Turkest.* fasc. i. (1873), p. 19; *Gartenfl.* 1872, p. 238.

B. sinensis, *Miquel, Prol. Fl. Jap.* p. 1.

B. chinensis, *Franch. et Savat. Enum. Pl. Jap.* vol. ii. p. 272.

B. cretica, *Thunb. Fl. Jap.* p. 166.

There is some confusion in respect of the nomenclature of the Japanese barberries. The plant here figured was first published by Thunberg in 1784 as being the same with the Linnæan *B. cretica*, to which indeed it is so similar in habit that A. Gray, in his account of the Japan plants collected by Wright during Commodore Rogers' U. S. Exploring Expedition (Trans. Amer. Acad. Sc. N. S., vol. vi. p. 380), says of it:—"We have from Japan both the true *B. vulgaris* and *B. Thunbergii*, DC., the latter very near *B. cretica*, and hardly distinguishable from our own Alleghanian *B. canadensis*." On the other hand, Miquel refers *B. Thunbergii*, DC., to *B. sinensis*, Desf., an entirely different species, with pendulous branches and long drooping racemes (figured in last year's volume of this work, Plate 6573). These two species have, however, been well dis-

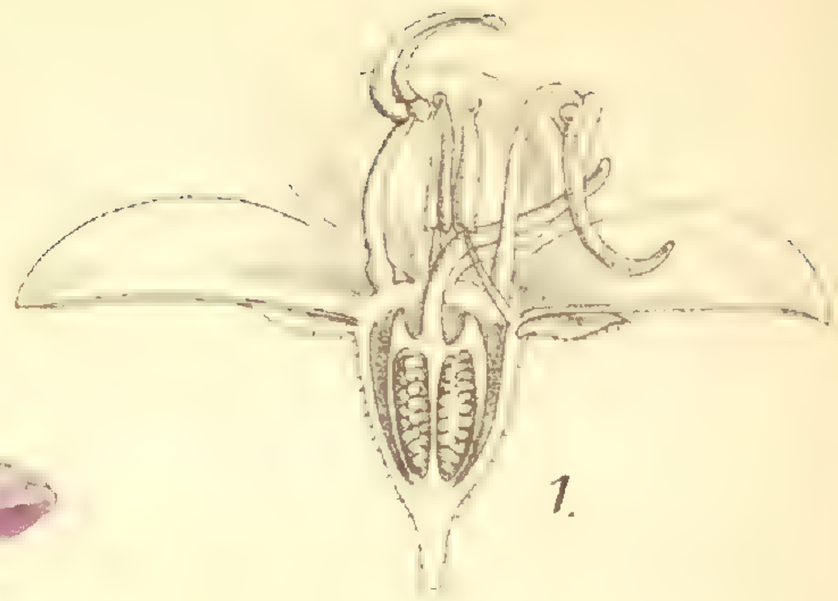
tinguished by Regel (Gartenflora, 1872, p. 238). The true *B. cretica* again, which is only a stunted form of *vulgaris*, L., is abundantly distinct from *B. Thunbergii*, in its three-partite spines, often serrated leaves, erect racemes of flowers, and notably in the form and colour of its pale flowers with large obtuse outer sepals. *B. Thunbergii* is indeed one of the most distinct species in cultivation, whether from its low almost tufted robust habit, or the colour of the small flowers, which are more red than yellow.

Regel describes as another species *B. Maximoviczii* (Gartenfl., 1872, p. 238), differing in the leaves not being glaucous beneath, but green on both surfaces: it is reduced to a variety (*β. Maximoviczii*) by Franchet and Savatier.

B. Thunbergii is a native of Japan, whence we have examined dried specimens collected at Yokohama by Mr. Dickens, Dr. Maximovicz, Wright, and others. The specimen figured was raised from seed sent by M. de Regel, from the Imperial Gardens at St. Petersburg; it flowers freely in April.

Descr. A low bush, with close strict, robust, deeply-grooved branches clothed with red-brown bark; spines simple, straight, half an inch long *Leaves* in crowded tufts all along the branches, half an inch to nearly one inch long, obovate or spathulate, quite entire, tip rounded, apiculate or not, nerves very indistinct. *Flowers* very numerous, small, one-fourth to one-third of an inch in diameter, drooping, solitary or in pairs on very slender curved pedicels which hardly exceed the leaves, rarely in shortly peduncled few-flowered umbels. *Sepals* three or four, equal, ovate, acute, red, half as long as the petals. *Petals* pale straw-coloured, suffused with red, outer nearly orbicular, inner more obovate. *Ovary* oblong; stigma broad, sessile, orbicular. *Fruit* a quarter of an inch long, globose, or broadly ellipsoid, with a sessile stigma.—*J. D. H.*

Figs. 1 and 2, Flowers with three and four sepals respectively; 3, vertical section of flower; 4 and 5, petals; 6, stamens; 7, ovary; 8, diagram of flower:—*all enlarged.*



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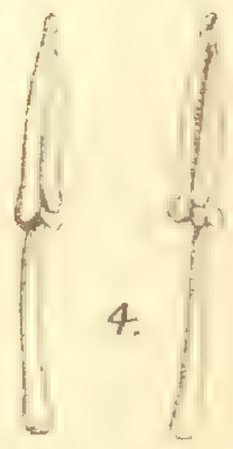

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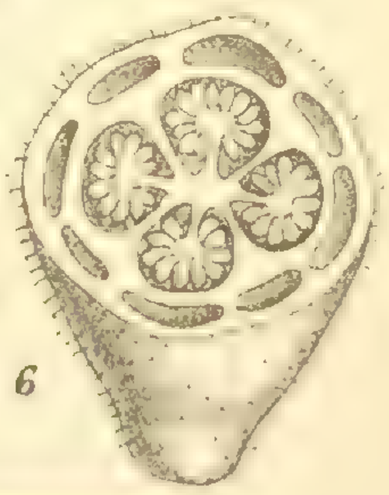

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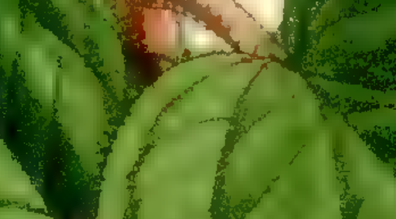

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A.B del J.N Fitch Lith

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Tab. 6647.

BREDIA hirsuta.

Native of Japan.

Nat. Ord. Melastomaceæ.—Tribe Oxysporeæ.

Genus Bredia, *Blume*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 753.)

Bredia *hirsuta;* gracilis, ramis petiolisque rufo-brunneis pubescentibus et patentim hispido-pilosis, foliis ovatis acutis 5–7-nerviis basi obtusis rotundatis v. cordatis ciliatis utrinque sparse setulosis pilis albidis, supra saturate viridibus, subtus pallidis, petiolo longiusculo, cymis terminalibus laxe paniculatis multifloris, pedunculo ramis pedicellisque gracilibus rufo-brunneis pubescentibus sparse setulosis, floribus roseis, calyce turbinato, lobis parvis triangularibus recurvis, petalis orbiculari-ovatis subacutis, antheris majoribus rubris curvis basi antice 2-tuberculatis, minoribus pallidis rectis.

B. hirsuta; *Blume Mus. Bot.* p. 24, fig. 4; *Miquel Fl. Ind. Bat.* vol. i. part i. p. 537; *Franch. et Savat. Enum. Pl. Jap.* vol. ii. p. 369; *Regel Gartenfl.* 1870, p. 193, t. 655.

The genus *Bredia* is one of the very few of the large tropical family of *Melastomaceæ* that inhabit temperate regions. It contains only two known species, of which the present is one; it is a native of Japan, or supposed to be so; for, according to Franchet and Savatier, it is only known there in gardens, where it forms a small shrub.

Descr. A small shrub two to three feet high, with slender spreading branches of a red-brown colour, which, as well as the petioles, are finely pubescent and clothed with long spreading bristly red hairs. *Leaves* three to four inches long, ovate, acute, rather membranous, five- to seven-nerved, with many transverse veins, base rounded obtuse or shortly cordate, margin obscurely sinuate or quite even, ciliate, upper surface dark green, under pale blueish green, both with scattered white bristles; petiole one to one and a half inches long. *Flowers* half an inch in diameter, in erect terminal lax panicled cymes four to six inches high; branches, peduncles, and pedicels red-brown, pubes-

cent and sparsely hairy; bracts at the axils opposite, ovate, minute; pedicels strict, slender. *Calyx* one-fifth of an inch long, narrowly turbinate, pubescent; lobes very small, triangular, recurved. *Petals* pale rose-coloured, one-third of an inch long, broadly ovate, almost rounded, obtuse. *Longer anthers* falcate, red, subacute, with one small terminal pore, and two tubercles at the base in front; smaller anthers nearly straight, pale. *Ovary* with a deep depression at the crown, its sides adnate to the calyx-tube by eight vertical plates in the cavities between which the anthers are lodged in the bud, the filaments being sharply deflected.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, ditto of bud, showing the position of the anthers; 3, larger stamen; 3*a*, terminal pore of the same; 4, smaller anther; 5, terminal pore of the same; 6, top of style and stigma; 7, transverse section of calyx and ovary:—*all enlarged.*

M & U del. J N Fitch

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Tab. 6648.

CATASETUM callosum.

Native of Venezuela.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Catasetum, *Swartz*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 551, ined.)

Catasetum *callosum*; pseudobulbis oblongis vaginatis, foliis obovato-oblanceolatis acutis plicatis, racemis multifloris, scapo rachi ovariisque rufo-brunneis, perianthii foliolis elongato-lanceolatis concavis acuminatis brunneis, sepalo dorsali petalisque erectis parallelis contiguis, sepalis lateralibus deflexis parallelis v. paullo divaricatis, labello hastato-ovato-v.-lanceolato luride virescente purpureo maculato obtuso convexo basi dorso saccato, apicem versus subtrilobo, lobo intermedio producto recurvo, marginibus crenulatis, callo basi virescente v. flavido, columna aurantiaca in rostrum elongatum gracile erectum producta.

C. callosum, *Lindl. in Bot. Reg.* 1840; *Misc.* n. 183 and 1841, t. 5, f. 1; *Rchb. f. in Walp. Ann.* vol. v. p. 568.

A form of the *Catasetum callosum* has been figured in this work (Plate 4219) under the name of *var. grandiflorum*; it, however, differs from the original plant described by Lindley, and now pourtrayed here, more in colour and narrowness of leaf than in the size of the flower; for whereas in this the sepals and petals are of a rich brown, and the lip a uniform dull green speckled with red, in the *var. grandiflorum* the sepals and petals are pale dirty-yellow green, with red-brown tips, and the lip is of a bright verdigris green with purple edges and spots, a bright-red tip and red callus. There can, however, be no doubt as to the specific identity of these two plants. It would be more interesting to know whether this species presents the different sexual forms that some other species of the genus do, and upon which the genera *Monachanthus* and *Myanthus* were founded by Lindley, the former representing a female form, having a short column without the cirrhi, a perfect stigma, and imperfect pollinia, and the latter a hermaphrodite form, with a ciliate lip and perfect

stigma and pollen. In the plant here figured I found the anther and stigma well developed, but the cirrhi were not sensitive, and the pollen masses were very small and apparently imperfect, whence I assume that this was a hermaphrodite form, with a functionally imperfect fertilizing apparatus.

C. callosum is a native of La-Guayra and Venezuela, from which latter country the specimen here figured was procured. It was presented to the Royal Gardens by Mr. Sander, of St. Albans, and flowered in the Orchid-house in December of last year. Other varieties are described as *C. Lansbergii*, Lindl. (Lindl. and Paxt. Fl. Gard. vol. i. p. 156), and *var. crenatum*, Regel (Gartenfl. vol. v. p. 275).

Descr. *Pseudobulbs* two to three inches long, clothed with sheathes. *Leaves* six to ten inches long by two to three broad, narrowly obovate or oblanceolate, plaited and strongly nerved. *Scape* radical, short; raceme pendulous, many-flowered; rachis very stout, red-brown; bracts half an inch, oblong-lanceolate, membranous. *Ovary* one to one and a half inches, slender, curved, red-brown. *Perianth* three and a half inches long, segments all narrowly lanceolate, acuminate, concave, bright-brown. *Dorsal sepal* and two petals quite erect, parallel and contiguous; two lateral sepals deflexed, parallel or slightly diverging. *Lip* one inch long, cordate- or hastate-lanceolate, convex, dirty green, speckled with red, with a short gibbous sac at the base behind, margins slightly toothed; tip three-lobed, mid-lobe elongate and recurved; callus yellow or green. *Column* dirty yellow, as long as the lip, ending in a long, slender, erect beak.—*J. D. H.*

A.B. del J.N Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6649.

ALBUCA Nelsoni.

Native of Natal.

Nat. Ord. Liliaceæ.—Tribe Scilleæ.

Genus Albuca, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 809, ined.)

Albuca *Nelsoni;* elata, robusta, glaberrima, bulbis magnis squamis carnosis viridibus orbiculari-ovatis exterioribus gradatim brevioribus, foliis 3–4-pedalibus a basi 2–3 poll. diam. sensim in apicem acuminatam angustatis infra medium concavis dein planis læte viridibus enerviis, scapo 4–5-pedali valido viridi, racemo pedali laxifloro, bracteis elongato-subulatis, pedicellis gracilibus erecto-patentibus inferioribus 3-pollicaribus bracteas excedentibus, floribus 2-pollicaribus, perianthii oblongi segmentis lineari-oblongis obtusis concavis apice incurvis albis, exterioribus medio dorso apicem versus virescentibus v. brunneo-virescentibus, staminibus omnibus fertilibus, filamentis crassiusculis albis basi quadrato-dilatatis, antheris parvis, ovario oblongo 3-gono faciebus cristatis.

A. Nelsoni, *N. E. Brown in Gard. Chron.* 1880, p. 198, fig. 41.

This, as Mr. Brown remarks in the work referred to, is by far the finest species of *Albuca* hitherto made known, all of which—there are sixteen species enumerated in Mr. Baker's revision of the genus in the Journal of the Linnæan Society (vol. xiii. p. 285)—are natives of tropical or southern Africa. It belongs to a small section of the genus (*Pallastema*), in which the stamens are all perfect, and the style more or less elongate; this section includes the *A. angolensis*, Welw., of western tropical Africa, which rivals *A. Nelsoni* in stature, and *A. abyssinica*, Dryand., of which the scape is two to four feet high and densely many-flowered.

A. Nelsoni was discovered by Mr. Nelson near the Umlayi river in Natal, and sent by him to his father's nursery at Thornbank near Rotherham, where it was flowered in 1880. The specimen here figured flowered in the Royal Gardens in July of the present year, the plant having been presented by Mr. Nelson.

Descr. *Bulb* from the size of a small apple upwards, green, globose, of numerous bright-green fleshy imbricating

broadly rounded ovate obtuse appressed scales, the outer shorter, margins brownish. *Leaves* four to six, suberect and spreading, three to four feet long, gradually narrowed from above the base, where they are three to four inches broad, to a slender straight point, concave, with the back rounded below the middle, flat above it, nerveless, bright green. *Scape* four to five feet high, erect, as stout as the middle finger, cylindric, bright green, smooth. *Raceme* a foot long, lax-flowered; bracts two to two and a half inches long, narrowly subulate, shorter than the slender ascending or erecto-patent pedicels. *Flowers* white, oblong, one and a half inches long. *Perianth segments* linear-oblong, concave, obtuse, with incurved hooded thickened tips, outer more or less spreading, inner conniving, all white except the middle of the back towards the tip, which is green or greenish brown. *Stamens* all fertile; filaments stoutly filiform, base dilated and quadrate; anthers small, oblong; pollen ochreous yellow. *Ovary* shortly stipitate, three-gonous, lower half thickened into a trigonous stipes which sends an adnate obtuse thickened process up each face; style longer than the ovary, stout, clavate, trigonous, papillose all over, ending in three obtuse stigmas.—*J. D. H.*

Fig. 1, Section of flower; 2, stamens; 3, ovary and style:—*all enlarged.*

A B del. J N Lith.

Vincent Brooks Day & Son Imp

Tab. 6650.

LILIUM Parryi.

Native of Southern California.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Lilium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. ined.)

Lilium *Parryi;* elata, glaberrima, bulbo estolonifero? squamis brevibus parvis ovoideis obtusis, foliis inferioribus v. omnibus verticillatis anguste elongato-lanceolatis acuminatis læte viridibus, racemis multifloris, rachi sulcato, floribus horizontalibus gracile pedicellatis inferioribus verticillatis, perianthio infundibulari-campanulato, segmentis 2–3½ pollicaribus lineari-oblanceolatis obtusiusculis extus stramineis basin versus virescentibus intus aureis infra medium remote purpureo-punctatis, staminibus exsertis perianthium subæquantibus, filamentis gracilibus, antheris lineari-oblongis, polline flavo-brunneo, stylo staminibus æquilongo, capsula lineari-oblonga.

L. Parryi, *Sereno Watson, in Proc. Davenport Acad.* vol. ii. pp. 188, 256, t. 5, 6; *Bot. Calif.* vol. ii. p. 165; *Elwes Monog. Lilium*, t. 12; *T. Moore, Florist and Pomologist*, 1882, p. 3, t. 553.

Though discovered so long ago as 1876, this Lily is one of the most recent introductions as a living plant. Mr. Elwes, indeed, in his noble monograph of the genus, had no other material for illustrating it than a drawing made in the United States from a dried specimen, and which drawing was pronounced by the discoverer of the species, Dr. Parry, to be "a true and characteristic likeness of the living plant." A comparison of Mr. Elwes' plate with both the specimens which first flowered in England, and the drawing in the "Florist and Pomologist," amply justifies Dr. Parry's statement, except as regards the colour of the flower, which is far too pale. On the other hand, the specimens which flowered most luxuriantly at Kew in the new Rock Garden, show a much more luxuriant development, the leaves being whorled almost throughout the stems, and the flowers much more numerous and also whorled often in sixes. The bulbs are quite like those of *L. pardalinum*, except that the new ones in the only specimen examined are produced quite close to the old.

October 1st, 1882.

L. Parryi is a native of the San Barnardino Mountains in Southern California, on the borders of the Arizona desert, in lat. 34° N., and at an elevation of 4000 feet. It was found in the potato-patch of a settler in a boggy soil, and is described as having only the lower leaves whorled. Mr. Elwes remarks that it belongs to a type intermediate between *L. Washingtonianum* and *L. pardalinum*, the nearer affinity being certainly with the former species.

The specimen from which our plate was made was presented by Max Leichltin, of Baden, and flowered profusely in July of the present year.

Descr. *Bulb* the size of a small apple, new ones (in the only root examined) formed close to the old without an intervening stalk, scales half an inch long, ovoid, fleshy, obtuse. *Stem* two to three feet high, stout, erect, cylindric, bright green. *Leaves* three to four inches long, in whorls of eight and more, the upper displaced and sometimes alternate, narrowly lanceolate, acuminate, bright green. *Raceme* a foot high and more, many-flowered; rachis stout, grooved; bracts one to two inches long, subulate-lanceolate; flowers in whorls of three to six or more, sometimes scattered or alternate, horizontal on slender suberect pedicels. *Perianth* three inches in diameter, between bell- and funnel-shaped; segments two to three inches long, narrowly oblanceolate, upper half spreading and revolute, externally deep straw-coloured, greenish towards the base, internally golden-yellow, with minute distant specks of purple. *Stamens* and *style* about equalling the perianth-segments. *Anthers* linear-oblong; pollen yellow-brown. *Capsule* linear-oblong.—*J. D. H.*

Fig. 1, Anthers; 2, stigma; 3, longitudinal section of ovary :—*all enlarged.*

M.S. del. J.N. Fitch. lith

Vincent Brooks Day & Son Imp

J. Reeve & Co. London

Tab. 6651.

HABERLEA RHODOPENSIS.

Native of Rumelia.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Genus Haberlea, *Frivaldsky;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1025.)

Haberlea *rhodopensis;* perennis, molliter hirsuta, foliis oblongo-ovatis v. obovatis in petiolum latum angustatis obtusis grosse crenatis crassiuscule coriaceis, nervis paucis, scapis 2–5-floris apice 2-bracteatis, floribus umbellatis lilacinis inclinatis v. cernuis, pedunculis brevibus, calycis 5-fidi lobis ovatis acutis, corollæ tubo intus pubescente, lobis orbiculari-obovatis emarginatis.

H. rhodopensis, *Frivaldsky in Act. Soc. Hung.* 1835, vol. ii. p. 249, t. 1; *Endl. Iconogr.* t. 69; *Griseb. Fl. Rumel.* vol. ii. p. 54; *Stein in Regel Gartenfl.* 1879, p. 323, t. 991, f. 4; *Rosenth. and Berm. Wien. Ill. Garten Zeit.* 1879. 487, *cum ic. xylog.*; *Boiss. Fl. Orient.* vol. iv. p. 82.

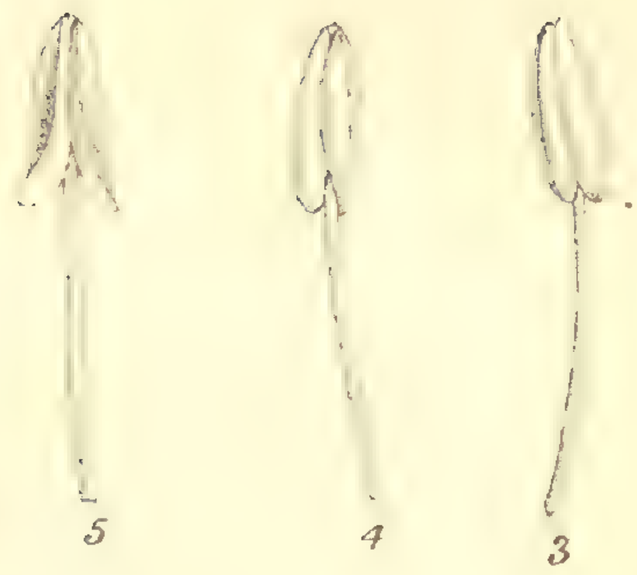
A very interesting plant, both because of its restricted local range, and of its being a type of a very large Asiatic and American Natural Order, the *Gesneraceæ*, of which only four species occur in Europe, all of them restricted in range, and three of them absolutely confined each to one spot. Of *Haberlea* there is only one species known; it is confined to a few miles of a single valley in Thrace, where it abounds, on the southern declivity of the Balkan range, growing on shaded schistose rocks near the town of Kalofer, and there forming in the flowering season a most beautiful feature of the landscape. Its nearest (and very near) ally is the genus *Ramondia*, of which only three species are known, including the beautiful *R. pyrenaica*, which is confined to the Pyrenees. The other species of *Ramondia* are geographically nearer neighbours of *Haberlea;* one, *R. Heldrichii*, inhabits only Mount Olympus in Thessaly, two hundred and thirty miles south-west of Kalofer; the third is found only in one spot in Servia, some three hundred miles west of the locality of *Haberlea*. To meet with other members of the *Gesneraceæ* all West Asia must be traversed, and for two thousand

miles, when two species occur nearly together in the North-Western Himalaya, namely, *Didymocarpus pedicellata* and the beautiful *Platystemma violoides*, neither of which has hitherto been introduced into cultivation. Continuing eastwards the genera and the species become abundant, many occurring in the Eastern Himalaya, whence the Order spreads eastwards through China and the Malayan Island to the Pacific and America.

Haberlea rhodopensis was presented to the Royal Gardens by its indefatigable correspondent, Max Leichltin, of Baden; and it is also one of the many beautiful plants which formed the bequest of the late Mr. Joad, of Wimbledon. It flowered beautifully in the new Rock Garden at Kew in April last.

Descr. A hardy perennial, clothed except the corolla with soft spreading hairs. *Leaves* all radical, spreading and recurved, two to three inches long, obovate- or ovate-oblong, obtuse, coarsely crenate, thickly coriaceous, narrowed into a broad stout petiole; nerves few, oblique, strong beneath. *Scapes* several, stout, dark purple-brown, four to six inches high, two- to five-flowered, with two small subulate or lanceolate bracts at the top. *Flowers* umbellate, drooping; pedicels stout, one-fourth to one-half of an inch long, with sometimes a filiform bracteole about the middle. *Calyx* campanulate, five-cleft to the middle, dark purple-brown; lobes ovate, acute. *Corolla* pale lilac, one inch in diameter; tube broad, hairy within; mouth oblique, obscurely two-lipped; lobes all rounded-obovate, emarginate, spreading, the two upper forming the upper lip the smallest. *Stamens* included; filaments glabrous; anthers united in pairs by the cells, which spread cruciately; abortive filament very short. *Disk* very narrow. *Ovary* and *style* pubescent; stigma notched.—*J. D. H.*

Fig. 1, Portion of corolla and stamens; 2, tops of two filaments and anthers; 3, ovary; 4, stigma; 5, transverse section of ovary:—*all enlarged.*



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A.B. del. J.N. Fitch lith.

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Tab. 6652.

OPUNTIA Davisii.

Native of New Mexico.

Nat. Ord. Cacteæ.—Tribe Opuntieæ.

Genus Opuntia, *Mill.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 857.)

Opuntia *Davisii;* caule dense lignoso ramosissimo, ramis divaricatis adscendentibus cylindricis, articulis junioribus erectis elongatis basi attenuatis, tuberculis oblongo-linearibus prominulis, setis stramineis tenerrimis, aculeis interioribus 4–7 subtriangularibus rufis apice pallidioribus vagina straminea laxa fulgida indusiatis divergentibus seu reflexis, aculeis gracilioribus inferioribus 5–6, bacca ovata, pulvillis sub-25 setas stramineas aculeolosque paucos gerentibus, umbilico lato.—*Engelm.*

O. Davisii, *Engelm. in Whipple Exped.* p. 49, t. xvi. f. 1-4.

A small shrubby species, remarkable for the bronzy colour of the flowers, which have a peculiar metallic lustre, which cannot be produced on the Plate. I give it the name under which it is cultivated by Mr. Loder, in his most interesting and rich collection of *Cacteæ*. It presents in some respects deviations from Engelmann's figure and description, but not more than might be expected to occur between young cultivated and old native specimens. In Engelmann's native specimen the spines are much larger and stouter, and the calyx wants the stout horn-like slightly recurved spines seen in the cultivated one (in which however all the fruits seen are described as sterile). I have preferred giving Dr. Engelmann's latin character for the species to one drawn up from the young cultivated specimens, to which I have restricted the English description.

O. Davisii is a native of the district of New Mexico, eastward and westward of the Tucumcari hills in lat. 35° N. and long. 104° W., on the head waters of the Canadian river, a branch of the Arkansas.

I am indebted to Mr. Loder for the specimen here figured, which flowered with him in July last. He informs me that

O. Davisii has been considered to be identical with *O. tunicata*, of which the flowers are unknown.

DESCR. A small much-branched bright-green glabrous shrub; branches spreading, joints elongate, slightly narrowed below, two to three inches long by half an inch broad; tubercles low, oblong, one-half to three-quarters of an inch long, not well defined, smooth; cushions low, rounded, about one-sixth of an inch in diameter, clothed with woolly felted hairs; spines four to seven, very unequal, slender and straight, the longest half an inch long, bright brown, covered with a deciduous glossy scarious sheath, often so loose as to give the spine a considerable thickness, the lower-most spine often becomes herbaceous green and much thickened, both on the joints and calyx. *Flowers* two and a half inches in diameter. *Calyx* turbinate, nearly two inches long, clothed, like the joints, with tubercles and spines. *Perianth-segments* in about three series pale bronzy green, glistening, outer rounded, subacute, intermediate oblong, inner obovate-spathulate, acute. *Stamens* very numerous and densely crowded, not half the length of the perianth-segments; filaments dark red; anthers yellow. *Stigma* partially exserted beyond the anthers, oblong, deeply four-lobed, pink.—*J. D. H.*

Fig. 1, Flower cut vertically; 2, spines; 3, 4, 5, stamens:—*all enlarged.*

M.S. del J.N. Fitch lith

Vincent Brooks Day & Son Imp

TAB. 6653.

CELMISIA SPECTABILIS.

Native of New Zealand.

Nat. Ord. COMPOSITÆ.—Tribe ASTEROIDEÆ.

Genus CELMISIA, *Cass.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 278.)

CELMISIA *spectabilis*; rhizomate descendente robusto, foliis rigide coriaceis ensiformibus lineari-oblongis v. elliptico-lanceolatis acutis v. obtusis erectis in vaginas elongatas tumidas sericeo-villosas angustatis, supra glabris v. sparse sericeo-pilosis nervis parallelis impressis, subtus lana pallide straminea v. fulva densissime opertis nervis obscuris, marginibus planis v. recurvis integerrimis v. obscure serrulatis, scapis foliis æquilongis v. superantibus validis laxe sericeo-lanatis 1-floris, bracteis numerosis linearibus erectis, capitulo 2-poll. diam., involucri late obconici lanati bracteis linearibus, ligulis numerosissimis albis v. pallide lilacinis revolutis, disci corollis aureis, acheniis glaberrimis, pappi setis valde inæqualibus.

C. spectabilis, *Hook. f. Fl. Nov. Zeald.* vol. i. p. 122, t. 33; *Handbook of New Zeald. Flora*, p. 134.

The genus *Celmisia* is one of the most beautiful of the New Zealand Flora, and contains nearly thirty species, all well worthy of cultivation, many of them indeed being extremely handsome; yet, strange to say, the species here figured is the only one hitherto introduced into this country, and that quite lately. The genus represents in New Zealand the Asters and Erigerons of the Old and New Worlds, which genera are otherwise absent in that archipelago, differing from them by very slight characters, chiefly in the presence of very short processes at the base of the anther-cells and in the achenes being usually neither flattened nor ribbed. The specimen of *C. spectabilis* here figured gives no idea of the stature which the species attains, or of the curious dwarf forms it sometimes assumes. In its largest state the base of the stem, clothed with silky leaf-sheaths, is as thick as a child's wrist, and the leaves a foot long and twenty to thirty in number; whilst the smallest forms have only a few leaves, and these little more than one inch long, linear-

oblong with rounded points. The scape too is sometimes three times as long as the leaves. In other respects the species is a very constant one; it ranges throughout the mountain regions of both the principal islands; in the northern it inhabits Tongariro (where it was discovered by Bidwill in 1839) and the Ruahine Mountains (Colenso), whilst in the middle island it occurs throughout the southern Alps at elevations of 2000 to 5000 feet.

I am indebted to Mr. Veitch for the opportunity of figuring this very beautiful and interesting plant, which flowered in his nursery in May of this year.

Descr. *Rootstock* woody, short or long, often as thick as the thumb, obliquely descending. *Leaves* numerous, strict, erect, usually five to seven inches long by one-half to one inch broad, thickly coriaceous, ensiform, elliptic-lanceolate or linear-oblong, obtuse or acute, quite entire or obscurely serrulate, dark green above with parallel impressed nerves and a few silky hairs, beneath densely clothed with matted buff- or straw-coloured wool; base narrowed, then dilated into a broad sheathing laxly silky-woolly tumid sheath, two to four inches long. *Scapes* several, stout, stiff, erect, longer than the leaves, clothed with silky white wool; bracts numerous, linear, erect. *Head* two inches in diameter; involucre obconic, scales very narrow, woolly. *Ray-flowers* very numerous, revolute, white or pale lilac. *Disk-flowers* yellow. *Achenes* narrowly ellipsoid, compressed, smooth and glabrous; pappus hairs very unequal.—*J. D. H.*

Fig. 1, Ray-flower; 2, base of ligule, thickened lip of tube, and style arms; 3, disk flower; 4, anther; 5, style-arms:—*all enlarged.*

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Tab. 6654.

ENCEPHALARTOS VILLOSUS.

Native of Natal.

Nat. Ord. Cycadaceæ.—Tribe Encephalarteæ.

Genus Encephalartos, *Lehm.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 445.)

Encephalartos *villosus*; trunco humili vel fere nullo frondium basibus tomentosis persistentibus arctissime imbricatis obtecto, foliis erectis demum patulis viridibus, petiolo rhachique primum cinereo-pubescentibus subcylindricis, segmentis utrinque 60–90 patentibus lineari-lanceolatis interdum subfalcatis basi angustatis apice pungente margine utrinque dentibus præcipue apicem versus plus minus distantibus suberectis pungentibus, inferioribus per spinas digitatas ad aculeos spiniformes sensim reductis, strobilis utriusque sexûs pedunculatis squamis oblique deflexis, masculo anguste cylindrico squamis oblongis vel deltoideis vix stipitatis apice triangulari subpeltato margine inferiori crenato-denticulato, fœmineo ovoideo-cylindrico squamis majoribus stipitatis apice peltiformi subquadrangulo margine inferiori ad medium erosodentato.

E. villosus, *Lem. Ill. Hort.* 1867, misc. p. 79 *et* 1868, t. 557; *Regel Cycad. Rev.* p. 17; *Gartenfl.* 1877, p. 214; *Eichler in Monastschr. Gartenb.* 1880, t. 1; *Gard. Chron.* N.S. vol. i. p. 513, vol. iii. p. 400, *et* vol. vi. p. 708 (*var. typica*); vol. vi. p. 709 (*var. nobilis*); vol. vii. p. 21 *et* vol. xiii. p. 181 (*strobilus mas*); vol. vi. p. 711 (*strobilus fœm.*).

This fine and very distinct species was first introduced into European horticulture from Natal by M. Ambroise Verschaffelt, of Ghent. Its singularly graceful habit has since won it a place in most considerable collections of stove foliage plants which can afford space for its proper display. When first described, its cones were unknown, but they have been repeatedly produced since in cultivation. I have been favoured with specimens of the male cones from T. S. Gladstone, Esq., Capenoch, Dumfriesshire, and from C. Warren, Esq., Handcross Park, Crawley; and of the female cones from Mr. Russel of Falkirk, Mr. Bull, and Don José da Canto of St. Michel, Azores. The female plant is undoubtedly the most ornamental. The colour of the cone of the latter is often very striking, sometimes assuming a deep apricot tinge.

November 1st, 1882.

The general habit and technical characters approach those of *Encephalartos Hildebrandtii* of Zanzibar, for copious photographic illustrations of which I am indebted to Sir John Kirk, H.M. Political Agent. This species is, however, abundantly distinguished by the female cone, the scales of which terminate in a quadrangular-conic apex.

Plants of both sexes have repeatedly produced cones at Kew. Those figured in the accompanying Plate, which, although small, are sufficiently characteristic, were produced in the summer of 1881.

Descr. *Stem* rarely developed in imported and cultivated specimens, probably always short, closely covered with persistent imbricated leaf-bases clothed with pale brown cottony tomentum. *Leaves* erect, then spreading, about five feet long, a foot to eighteen inches wide towards the apex, bright green; petiole and rachis subcylindric, clothed at first with a deciduous fluffy tomentum; leaflets sixty to ninety pairs, alternate or opposite, rather close-set, about three-quarters of an inch wide, linear-lanceolate, sometimes subfalcate, abruptly narrowed at the base, apex pungent, margin toothed on either side especially towards the apex; teeth erect, more or less scattered, pungent; lower leaflets diminishing in length downwards, passing gradually into digitate and ultimately simple spines extending to base of petiole. *Cones* pedunculate. *Male cone* pale yellow, narrowly cylindric, one to two feet or more long, two and a half to three inches wide; scales spreading, oblong-quadrate to deltoid, apex obliquely deflexed, subpeltate triangular, three-quarters to an inch wide, inferior margin more or less crenate-denticulate. *Female cone* greenish-orange to apricot-coloured, ovoid-cylindric, as much as a foot and a half long by seven inches wide; scales long-stalked, apex obliquely deflexed, peltate, subquadrangular, about an inch and a half across lower margin, erose-dentate at the middle. *Seeds* ovoid, somewhat angular, ultimately protruded between the separating scales of the mature cone, about one inch and a quarter long, testa crimson.—*W. T. T. D.*

Fig. 1, Portion of rachis with two leaflets; 2, scale of male cone; 3, scale of female cone with the two seeds attached:—*all natural size.*

H T D. del. J.N. Fitch, lith.

Vincent Brooks Day & Son, Imp.

Tab. 6655.

AGAVE UNIVITTATA.

Native of Mexico.

Nat. Ord. Amaryllidaceæ.—Suborder Agaveæ.

Genus Agave, *Linn.*; (*Kunth Enum.* vol. v. p. 818.)

Agave (Littæa) *univittata*; acaulis, foliis 50 vel ultra dense rosulatis ensiformibus rigidis 1½–2-pedalibus sordide viridibus lineâ mediana pallida vittatis apice spinâ pungente armatis marginibus continuis corneis angustis aculeis marginalibus distantibus parvis falcatis, pedunculo gracili 3–4-pedali, bracteis vacuis linearibus superioribus squarrosis, floribus in spicam elongatam cylindricam dispositis, bracteis parvis lanceolatis, pedicellis brevissimis, bracteolis minutis lanceolatis, floribus viridibus, ovario cylindrico pollicari collo constricto, perianthii tubo subnullo, segmentis oblongo-lanceolatis ovario brevioribus, staminibus segmentis 2–3-plo superantibus.

A. univittata, *Haworth in Phil. Mag.* vol. x. p. 414; *Salm-dyck Hort. Dyck.* p. 308; *Bonpland.* vol. vii. p. 92; *Kunth Enum.* vol. v. p. 835; *C. Koch in Wochenschrift*, 1860, p. 47; *Baker in Saund. Ref. Bot.* tab. 215; *in Gard. Chron.* 1877, p. 369, fig. 58.

This is one of the best-known and most distinct of the marginate Agaves. It is remarkable for its very stiff numerous narrow pungent ensiform leaves, which have a narrow horny border, with distant prickles, and invariably are marked down the centre with a narrow pale band, such as occurs casually in some other species. It has been in cultivation in this country for fifty years at least, but the flowering was not recorded till it was figured in 1870 in the Refugium. During the last few years I have seen it in flower, not only in our own collection, but also in those of Messrs. Peacock and Wilson Saunders. Our drawing was made from a plant that flowered at Kew in the spring of 18.0.

Descr. *Leaves* fifty or more in a dense sessile rosette, ensiform, very rigid in texture, one and a half or two feet long, one and a half or two inches broad at the middle, not narrowed at all downwards, narrowed gradually upwards to the pungent brown point, quite flat on the face in the

lower half, a quarter of an inch thick in the middle, dull dark glaucous green with a band of pale yellowish-green down the centre, furnished with a continuous narrow brown horny border, with small distant much-hooked prickles. *Peduncle* three or four feet long, furnished with copious linear barren bracts, the lower ones ascending, the upper squarrose. *Inflorescence* a cylindrical spike seven or eight feet long, four inches in diameter when the flowers are fully expanded; flowers arranged in sessile pairs subtended by a small lanceolate scariose bract; pedicels a line long, each furnished with a minute lanceolate bracteole. *Flowers* proterandrous, very pale glaucous green in bud. *Ovary* cylindrical, an inch long, constricted at the neck; tube scarcely any; segments oblong-lanceolate. *Stamens* inserted at the base of the perianth-segments; filaments above an inch long; anthers linear. *Style* not developed till after the anthers fade, finally an inch and a half long. —*J. G. Baker.*

Fig. 1, A small portion of the flower-spike; 2, a complete flower in its final stage, with stigma developed and stamens faded; 3, half a flower, above the top of the ovary, as seen from within :—*all life size.*

H.T.D. del. J.N. Fitch, lith

Vincent Brooks Day & Son, Imp

L. Reeve & Cº London.

Tab. 6656.

UTRICULARIA Endresii.

Native of Costa Rica.

Nat. Ord. Lentibularieæ.

Genus Utricularia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 987.)

Utricularia *Endresii;* terrestris et epiphytica, cæspitosa, glaberrima, caulibus repentibus tuberculiferis, foliis deciduis lanceolatis in petiolum gracilem angustatis acutis undulatis, scapo elongato erecto 4–5-flore hic illic foliis parvis linearibus v. subulatis aucto, bracteis oblongis lanceolatisve, floribus amplis pallide lilacinis, sepalis ovatis obtusis, corollæ labiis amplis undulatis ciliolatis, superiore orbiculari subplicato, basi subtruncato, inferiore ter majore latiore quam longo subobcordato v. latissime cuneato angulis rotundatis, palato prominente marginibus in auriculas obtusas elevatis, calcare robusto incurvo labio inferiore breviore.

U. Endresii, *Reichb. f. in Gard. Chron.* 1874, p. 582.

This, as Dr. Reichenbach well indicates under his description, is very closely allied to *U. montana* (Plate 5923), and except the colour of the flower, much more slender habit, and very membranous leaves, it is not easy to point out any other prominent distinguishing characters between them, except perhaps the beautiful microscopic fringe of the corolla of *U. Endresii*, of which I see no trace in its ally. Another near neighbour is *U. Humboldtii*, Schomb., of the marshes of Guiana, figured in the Annales de Gand (vol. i. tab. 34); this, according to the rude figure (apparently made from herbarium specimens), is a still more robust plant, with a very broad leaf, a flower almost twice as large, dark blue, with a cuneiform lower lip, and a long spur.

U. Endresii inhabits the hills of Costa Rica at an elevation of 2000 feet, where it was discovered by Señor Endres in 1868, who describes the leaves as deciduous, whence no doubt the plant should have a resting season. The specimen figured flowered at Kew in the cool Orchid House in the spring of the present year.

November 1st, 1882.

Descr. *Rhizomes* slender, tufted, creeping amongst moss on tree trunks and on the ground, bearing ovoid green tubercles a quarter of an inch long. *Leaves* solitary, one to three inches long, narrowly elliptic-lanceolate, narrowed into a slender stiff petiole of about the same length, acute, flaccid, membranous, waved, midrib strong; nerves very slender, oblique, branching and reticulate. *Scape* twice as long as the leaves, slender, erect, wiry, about five-flowered, bearing three to five very slender erect linear or filiform leaves a quarter to a half inch long; bracts about as long, oblong and obtuse, or lanceolate. *Flowers* drooping; pedicels very slender. *Sepals* one-half to three-quarters of an inch long, ovate, obtuse, pale greenish or reddish. *Corolla* one and three-quarters to two inches in diameter, beautifully ciliolate all round, pale lilac with a yellow palate; upper lip nearly rounded, rather cuneate at the base, very much and loosely undulate; lower nearly three times as large, much broader than long, obcordate, or very broadly wedge-shaped with rounded angles, raised along the middle line by a mesial fold reaching to the palate, which is glabrous, almost horseshoe-shaped, with high rounded borders. *Spur* incurved, shorter than the lower lip.—*J. D. H.*

Fig. 1, Flower seen in front; 2, side view of lower lip and spur; 3, stamens; 4, ovary :—*all enlarged.*

H T D del. J N Fitch lith

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Tab. 6657.

FICUS stipulata.

Native of China and Japan.

Nat. Ord. Urticeæ.—Tribe Artocarpeæ.

Genus Ficus, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 367.)

Ficus *stipulata;* caulibus plantis junioribus et sterilibus radicantibus repentibus late diffuse ramosis, ramis hirtis gracilibus, ramis senioribus v. fructiferis ascendentibus articulatis robustis sulcatis hirsutis, foliis in plantis junioribus distichis subsessilibus oblique ovato-cordatis subacutis penninerviis utrinque reticulatim nervosis hirtis glabriusculisve, foliis in plantis v. ramis fructiferis multo majoribus oblongis utrinque obtusis basi triplinerviis supra lævibus subtus prominenter reticulatis, petiolo hirsuto, stipulis foliis junioribus membranaceis glabris, in senioribus firmis dorso dense pubescentibus v. villosis, receptaculis magnis pedunculatis pyriformibus turbinatisve appresse pubescentibus demum glabris intus villosis, perianthio ♀ 4-mero, stylis aliis filiformibus in stigmate acuto aliis robustis stigmate peltato.

F. stipulata, *Thunb. Dissert. de Ficu.* n. 7; *Vahl, Enum. Pl.* vol. ii. p. 184; *Willd. Sp. Pl.* vol. iv. pars 2, p. 1139; *Ait. Hort. Kew.* ed. 2, vol. v. p. 486; *Miquel in Hook. Lond. Journ. Bot.* vol. vii. p. 439; *Wendl. Coll. Plant.* t. 72; *Masters in Gard. Chron.* 1880, p. 716, fig. 135 *et* fig. 102, 103 (*F. repens*).

F. scandens, *Lam. Dict.* vol. ii. p. 498; *Vahl Enum. Pl.* vol. ii. p. 184.

F. repens, *Hort.*

Plagiostigma stipulatum, *Zuccarin. in Abhandl. Acad. Bayer. Wissenschaft.* vol. i. p. 154 *in nota.*

Tenorea heterophylla, *Gasparr. Ricerche Sull. Nat. Caprif. e del Fico.* p. 81, t. 8, f. 22-31.

Of this well-known little ornament of the warm greenhouse and hothouse, only the female flowers have been seen, and there is some doubt as to the structure of the stigma of these, which is described by Zuccarini and Miquel as peltate, agreeing with the figure here given, but which, in the specimens that I have examined in the Herbarium, from the Berlin Garden, collected in 1877 by Mr. Bentham, and from a French Garden, preserved in Gay's Herbarium, is unmistakably very long, filiform, and narrowed to the very tip. Possibly the flowers are dimorphic, for the genus *Plagiostigma* was founded by Zuccarini for this species on the peltate form of its stigma.

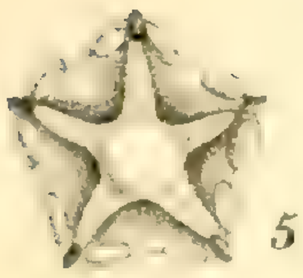
Ficus stipulata was, according to Aiton, introduced about

the year 1771, but it is comparatively lately that it has become so common a favourite for tapestrying the walls of conservatories, &c., and for which no other plant is so well suited. It is a native of both China and Japan, extending as far south as Hong Kong. Our figure of the fruiting plant was taken from a specimen grown at Kylemore Castle, co. Galway, in the garden of Mitchell Henry, Esq., M.P.

DESCR. *Stem* and *branches* of young and barren plants extensively creeping and rooting, much branched and spreading, appressed to and clothing the trunks of trees, walls, &c., flexuous, slender, hispid; fruiting branches suberect, free, stout, jointed, channelled, hispidly hairy. *Leaves* of young and barren branches close-set, distichous, shortly petioled or sessile, appressed to the wall or support, half an inch to one and a half inch long, obliquely ovate-cordate, subacute, very unequal at the base, glabrous or scabridly pubescent, nerves very reticulate beneath; stipules glabrous, membranous, bifid; leaves of fruiting branches three to four inches long, elliptic-oblong, petioled, spreading all round, very coriaceous, obtuse at both ends or rounded at the base, which is triple-nerved, smooth on both surfaces, closely and prominently reticulate, beneath dark green; petiole one-half to two-thirds of an inch long, hispidly hairy, reddish; stipules lanceolate, densely hirsute on the back. *Receptacle* peduncled, solitary, axillary, pear- or top-shaped, two to three inches long, narrowed at the base and tip, obscurely lobed, dark blue- or red-purple, appressedly pubescent, at length glabrous, fleshy; bracts at the mouth ovate, acute, spreading, inner surface villous; peduncle as long, very hairy. *Flowers*, female only seen, pedicelled; perianth-segments four, oblong, obtuse. *Ovary* obliquely rounded or dimidiate; style either capillary with an acute stigma, or shorter with a peltate stigma.—*J. D. H.*

Fig. 1, Female flower from near the mouth of the receptacle:—*enlarged.*

1



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H.T.D. del J.N.Fitch lith

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Tab. 6658.

HUERNIA oculata.

Native of Dammara Land.

Nat. Ord. Asclepiadeæ.—Tribe Stapelieæ.

Genus Huernia, *R. Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 784.)

Huernia *oculata*; humilis, cæspitosa, glaberrima, ramis erectis 5-angulatis, sinubus acutis, angulis compressis grosse molliter spinoso-dentatis, dentibus rectis v. curvis, floribus subcymosis breviter pedicellatis, pedicellis glabris, lobis calycinis subulato-lanceolatis, corollæ lævis lobis brevibus parvis triangularibus acutis sinubus 1-dentatis, limbo saturate purpureo, tubo albo, corona exteriore a basi columnæ explanato 5-lobo, lobis horizontalibus rotundatis integerrimis, interiore e cornubus 5 dorso antherarum adnatis dein inflexis apicibus supra stigma cohærentibus.

The genus *Huernia*, of which only a dozen species are described, is no doubt a very large one in South Africa, extending from the Cape district far to the north, though its exact limits are unknown. The species resemble *Stapelias* in habit, but differ in the broadly campanulate or cupular corolla with very small lobes, and having a tooth in the sinus between them. *H. oculata* resembles no described species, and is remarkable for the striking contrast in colour between the deep violet-purple limb of the corolla and the white cup-shaped tube, the limits of the colours being so sharply defined that the flower has a staring look. It was procured with other very singular plants in Dammara Land, in 1880, by Capt. Een, when trading on that coast, and brought by him to Kew, where it flowered in June, 1880.

Descr. Densely tufted, branching from the base, pale green, soft; branches three to four inches high by one-half to three-quarters of an inch broad, five-angled, quite smooth, sinus deep between the angles, acute at the base; angles compressed, produced into soft spine-like teeth one-third to half an inch long, that are broad at the base and straight or curved. *Flowers* in small lateral few-flowered

cymes; pedicels short, glabrous. *Calyx* segments one-third of an inch long, subulate. *Corolla* nearly one inch in diameter, tube almost hemispherical, rounded at the base; limb short spreading, five-toothed, the teeth short triangular acute remote, with a minute intermediate tooth; the tube is white inside, the limb deep violet-purple, sharply defined in a circle against the white of the tube. *Column* short; outer corona adnate to the base of the column, spreading horizontally from it, five-lobed; lobes fleshy, rounded, quite entire, concave on the surface; inner corona of five large subulate fleshy papillose teeth inserted one at the back of each anther, inflected over the stigma and meeting at their points. *Anthers* truncate; pollen-masses pyriform, caudicle short; gland with two subulate auricles. *Stigma* discoid, five-angled.—*J. D. H.*

Fig. 1, Four sepals, portion of the base of the corolla and column; 2, column with outer and inner corona; 3, side, and 4, front view of anther and inner coronal appendage; 5, stigma and pollen-masses; 6, pollen-masses:—*all enlarged.*

6659.

M. S. del. J. N. Fitch lith.

Vincent Brooks Day & Son Imp

Tab. 6659.

HAMAMELIS japonica.

Native of Japan.

Nat. Ord. Hamamelideæ.

Genus Hamamelis, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 667.)

Hamamelis *japonica*; fruticosa v. subarborea, ramulis ultimis petiolis nervisque foliorum subtus plus minusve pubescentibus, foliis obovatis ellipticisve sinuato-crenatis v. dentatis acutis v. obtusis basi rotundatis acutis v. cordatis sæpe inæquilateris, nervis validis, calycis lobis revolutis rubris, capsula basi tantum cum calyce cincta.

H. japonica, *Sieb. et Zucc. Abhandl. Math. Phys. Klasse Baier. Akad.* vol. iv. pars 2, p. 193; *Franch. et Savart Enum. Pl. Jap.* vol. i. p. 163, vol. ii. p. 368; *Walp. Ann.* vol. i. p. 982; *Miquel Prolus. Fl. Jap.* p. 209.

H. arborea, *Masters in Gard. Chron.* 1881, pars 1, p. 216, fig. 38.

A very interesting plant, so closely allied to the North American Witch Hazel, *H. virginica*, that it might easily be mistaken for that plant, the principal differences being the rather larger flowers with red revolute calyx-lobes, and the short fruiting calyx of this; in foliage they are almost undistinguishable; the leaves of *H. virginica* are however usually narrower and often more lobulate. Franchet and Savart, who discuss the differences between the two species, overlook the calyx, and attach most importance to the statement that the leaves of *H. japonica* are six- to nine-nerved, and of *H. virginica* five- to six-nerved, a distinction that does not at all hold good; they further observe that the calyx in fruit of *H. japonica* is sometimes half as long as the capsule, whilst in all the specimens which I have examined it is confined to the base. A plate has been prepared of *H. virginica* from plants growing in Kew, to show the differences. The genus *Hamamelis*, consisting only of these two species, is one of the best of the many proofs of that close connexion between the Floras of Japan and Eastern North America, to the exclusion of the Western

side of that continent, which has been so ably discussed by Dr. Gray, and which he has shown to throw so much light on the origin and distribution of the North American Flora.

H. japonica was introduced into cultivation by Messrs. Veitch; it flowers, like its American kinsman, as the leaves fall in autumn, and fruits the next summer. The petals in our specimen are narrower and less crumpled than in that figured in the "Gardeners' Chronicle," and in some dried specimens from Japan. There is a plant of it in the Kew Arboretum presented by Messrs. Veitch, to whom I am indebted for the specimens here figured, of which the leaves were drawn in September, and the flowers in the following February.

DESCR. A shrub or small tree; branches rather stout, covered with brown bark, young branchlets, buds, petioles and often leaf-nerves beneath bracts and calyx externally clothed with a fine close pubescence. *Leaves* ovate oblong or rounded, two to three and a half inches long and broad, obtuse or acute, sinuate-toothed or -crenate, firm in texture, dark green; base acute obtuse cordate or rounded; nerves deeply sunk above, very prominent beneath; petiole very short, stout. *Flowers* in sessile or subsessile globose heads one-half to three-fourths of an inch in diameter, crowded; bracts small, rounded, appressed to the calyx. *Calyx* one-third of an inch across the lobes, tube campanulate; lobes broadly ovate, revolute, dull red, margins villous. *Petals* two-thirds of an inch long, strap-shaped, waved, tip acute obtuse or notched, golden-yellow, involute in æstivation. *Stamens* very short, filaments stout; anthers opening by valves in front. *Carpels* two, silky, styles filiform. *Capsule* subglobose, half an inch long, densely brown-tomentose, girt at the base by the calyx-tube.—*J. D. H.*

Fig. 1, Bud (from "Gardeners' Chronicle"); 2, portion of flower laid open; 3, petal; 4 and 5, front and side view of stamens; 6, rudimentary stamens; 7, carpels; 8, transverse section of a carpel:—*all enlarged.*

A B del J N Fitch lith

Vincent Brooks Day & Son Imp

TAB. 6660.

FALLUGIA PARADOXA.

Native of New Mexico.

Nat. Ord. ROSACEÆ.—Tribe POTENTILLEÆ.

Genus FALLUGIA, *Endlicher;* (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 618.)

FALLUGIA *paradoxa;* fruticulus ramosus, ramulis gracilibus pubescentibus, foliis fasciculatis anguste cuneatis pinnatim v. flabellatim 3–7-fidis, lobis linearibus obtusis subtus niveis, floribus apices versus ramulorum solitariis v. subracemosis graciliter pedicellatis, pedicellis basi minute bracteatis et hic illic bracteolatis, floribus amplis albis, calyce parvo, petalis rotundatis, achæniorum caudibus 1–1½ pollicaribus capillaceis plumosis.

F. paradoxa, *Endl. Gen. Pl.* p. 1246; *Torrey in Emory Rep.* p. 185, t. 2; *S. Wats. Bot. Calif.* vol. ii. p. 175.

F. mexicana, *Walp. Rep.* vol. ii. p. 46.

SIEVERSIA paradoxa, *Don in Trans. Linn. Soc.* vol. xiv. p. 575, t. 22.

GEUM? cercocarpoides, *Moc. et Sesse; DC. Prodr.* vol. ii. p. 554.

A very singular and beautiful plant, closely allied to *Geum*, differing chiefly in the shrubby habit and imbricate calyx-lobes. It is a native of the dry interior western regions of North America between the Rocky Mountains and the Sierra Nevada, where it inhabits open plains and hills in Utah and Nevada, but principally in New Mexico. I gathered it in company with Dr. Gray on the Sierra Blanca at about 7000 feet elevation in the southern part of Colorado, bordering New Mexico, whence the seeds were sent to England in 1877. The copious large white blossoms on the slender branches, moving with the slightest breath of wind, gave the bushes a very beautiful appearance.

The plant flowered for the first time in July of the present year, in the Royal Gardens, in an open border of the herbaceous grounds.

DESCR. A slender bush, two to four feet high, much branched below, sparsely above, the terminal branches usually very long and slender, tapering into a long single-

flowered peduncle or in a very lax raceme; bark quite white, of the branchlets, peduncles and pedicels pubescent, or tomentose. *Leaves* fascicled on the branches, one-third to two-thirds of an inch long, cuneate, narrowed into a short petiole, flabellately or pinnately cut into five to nine narrow linear obtuse lobes, bright green above, white and tomentose beneath, margins recurved. *Flowers* one to one and a half inch in diameter; pedicels as long, very slender, bracteate at the base, and with often one or more bracteoles along their length; bracts and bracteoles small, oblong-lanceolate, appressed. *Calyx* one-fourth of an inch in diameter; tube turbinate, villous within; lobes ovate acute or two- to three-toothed at the tip, densely tomentose, with a subulate bracteole at the sinus between each. *Petals* pure white, orbicular, fugacious. *Stamens* in a triple series at the mouth of the calyx, filaments capillary, half as long as the petals; anthers minute. *Carpels* numerous, on a minute conical receptacle at the bottom of the calyx-tube; style very slender; stigma minute; ovule basal, erect. *Ripe* carpels lanceolate, silky, ending in capillary feathery styles one to one and a half inch long.—*J. D. H.*

Fig. 1, Flower cut vertically; 2, calyx seen from the back; 3, stamens; 4, carpel; 5, ripe ditto; 6, vertical section of immature achene:—*all enlarged.*

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

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Tab. 6661.

ANDROSACE FOLIOSA.

Native of the Himalaya.

Nat. Ord. Primulaceæ.—Tribe Primuleæ.

Genus Androsace, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 632.)

Androsace *foliosa*; elata, pubescenti-pilosa, rhizomate crasso estolonifero, foliis magnis ellipticis v. obovato-ellipticis acutis v. obtusis in petiolum elongatum angustatis integerrimis utrinque laxe pilosis, scapo solitario elongato robusto, floribus umbellatis graciliter pedicellatis, bracteis parvis v. majusculis, calycis lobis oblongis oblongo-lanceolatisve obtusis, corolla $\frac{1}{3}$–$\frac{1}{2}$ poll. diam., lobis obovato-rotundatis, ovario turbinato, capsula calyce duplo longiore.

A. foliosa, *Duby in Jacquem. Voy. Bot.* p. 142, t. 146, *et in DC. Prodr.* vol. viii. p. 49.

A. sarmentosa, *var.* foliosa, *nob. in Fl. Brit. Ind.* vol. iii. p. 498.

This is by far the largest known species of *Androsace*, and though itself so unlike *A. sarmentosa* figured at Plate 6210 of this work, there are so many forms of the latter plant approaching it in size and in habit, that I was induced, when monographing the Indian species of the genus, to bring these two together as varieties of one plant; nor, though the differences between them are even more striking in living than in dried specimens, am I at all convinced that I was wrong. *A. sarmentosa* varies extremely in stature and in the base of the leaves, and sometimes wants the stolons altogether, and developes tall stout scapes exactly as in *A. foliosa*. A very similar plant to this occurs in Sikkim, which Duby referred to *A. foliosa*, but which has much broader shorter calyx-lobes; this is my var. *grandifolia*.

A. foliosa is a native of the Western Himalaya, at elevations of 8,000 to 12,000 feet; in its wild state it has usually very small involucral bracts, but these vary excessively in *P. sarmentosa*, and would naturally become highly developed in cultivation, as have all the organs in

the specimens of *A. foliosa* here figured, the leaves and flowers of which far exceed those found in the native state of the plant.

A. foliosa was raised by Isaac Anderson Henry, Esq. (the introducer of *A. sarmentosa*, Tab. 6210) from seeds sent by his niece, Mrs. Johnstone, from the N. W. Himalaya. It flowered on the 18th May of the present year, and continued in full bloom till September, throwing out flower after flower during all that time. Mr. Anderson Henry further informs me that he has raised young plants of what appears to be the same species, but with shorter and broader leaves.

Descr. Whole plant covered with lax soft hairs. *Root-stock* woody, about the size of a nut, without stolons, sending up one or more very short stems, so reduced in native specimens that the leaves are to all appearance radical, whilst in the cultivated example here figured the stem is two inches high, and red. *Leaves* two to three inches long, elliptic or elliptic-oblong, obtuse or acute, deep green, hairy on both surfaces, narrowed into a petiole half as long as the blade or longer. *Scape* solitary, stout, erect, three to five inches high. *Umbel* many-flowered; bracts very small in native specimens, linear or obovate and sometimes leafy in cultivated ones; pedicels one-fourth to three-fourths of an inch long. *Calyx-lobes* oblong or oblong-lanceolate, obtuse. *Corolla* one-third to half an inch in diameter, pale flesh-coloured; mouth contracted, thickened, greenish; lobes orbicular-obovate, tips rounded. *Stamens* minute, filaments very short. *Ovary* turbinate.—*J. D. H.*

Fig. 1, Calyx; 2, corolla laid open; 3, ovary:—*all enlarged.*

A.B. del. J.N.Fitch lith

Vincent Brooks Day & Son Imp

Tab. 6662.

ONCIDIUM prætextum.

Native of South Brazil.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Oncidium, *Swartz;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 562 (ined.)

Oncidium (planifolia) *prætextum;* pseudobulbis oblongis leviter sulcatis 2-foliatis, foliis ensiformibus subacutis basi breviter vaginantibus, panicula graciliter breviter pedunculata nutante sparsiflora, floribus graciliter pedicellatis 1½ poll. diam., bracteis parvis, sepalo dorsali parvo stipitato obovato v. elliptico obtuso intus aureo brunneo fasciato, lateralibus lineari-oblongis obtusis deflexis, petalis sepalis duplo majoribus obovatis profunde sinuato-lobulatis pallide brunneis, labelli magni breviter stipitati lobis lateralibus parvis quadratis aureis intermedio amplo semicirculari v. flabelliformi undulato aureo brunneo late marginato, callis utrinque ad basin oblongis verrucosis, columna minuta subglobosa, alis rotundatis.

O. prætextum, *Reichb. in Gard. Chron.* 1873, p. 1206.

This belongs to much the largest section of the genus *Oncidium*, which abounds in Brazil, and of which the species are as yet only partially known in collections. Dr. Reichenbach indicates *O. crispum*, Lodd. (Plate 3499 of this work) as allied to it, and no doubt correctly, though *O. crispum* is a much larger and coarser plant with almost wholly brown flowers relieved with yellow only at the bases of the petals, lip, and column.

O. prætextum was introduced by John H. Wilson, Esq., of Liverpool, who communicated specimens to Dr. Reichenbach in 1873, and who states that it was discovered by Mr. E. D. Jones in the province of St. Paolo, Brazil. The specimen here figured flowered in the Royal Gardens in July last. It is deliciously sweet-scented.

Descr. *Pseudo-bulbs* one and a half to two inches long, oblong, slightly compressed and faintly grooved. *Leaves* two at the top of the pseudo-bulb, five to seven inches long by one to one and a half broad, ensiform, subacute, pale

green. *Panicle* from the base of the pseudo-bulb, shortly peduncled, drooping, graceful, lax-flowered; rachis and slender pedicels curved; bracts very small, appressed. *Flowers* one and a half inch in diameter, sweet-scented. *Sepals* golden yellow with broad blotches of pale brown; dorsal small, half an inch long, stipitate, obovate or elliptic, obtuse; lateral deflexed and hidden by the lip, linear-oblong, obtuse. *Petals* more than twice as large as the sepals, broadly obovate, deeply sinuate and almost lobulate, pale brown. *Lip* very large, one inch long and one and a quarter broad, shortly stipitate; lateral lobes very small, square with acute angles, yellow speckled with red; terminal lobe fan-shaped from a very narrow base, undulate, golden yellow with a broad pale-brown outer margin; calli at its base one on each side oblong, very prominent, warted; the area between the lateral lobes is also warted. *Column* very small, yellow banded with red; wings rounded.—*J. D. H.*

Fig. 1, Column and lip seen in front; 2, ovary column and base of lip; 3, anther lid; 4, pollen masses :—*all enlarged.*

M.S.del. J.N.Fitch lith

Vincent Brooks Day & Son imp

TAB. 6663.

HYACINTHUS FASTIGIATUS.

Native of Corsica and Sardinia.

Nat. Ord. LILIACEÆ.—Tribe HYACINTHEÆ.

Genus HYACINTHUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 812, ined.)

HYACINTHUS *fastigiatus;* bulbo parvo ovoideo tunicis pallidis membranaceis, foliis 4–8 synanthiis subulatis carnoso-herbaceis flaccidis glabris erectis dorso rotundatis facie canaliculatis, scapo brevi tereti gracili, racemis paucifloris sæpe subcorymbosis, pedicellis erecto-patentibus flore interdum longioribus, bracteis parvis solitariis lanceolatis vel deltoideis, perianthii lilacini segmentis oblongo-lanceolatis tubo campanulato longioribus, staminibus ad perianthii faucem uniseriatis, filamentis brevibus, antheris minutis cæruleis, ovario globoso, ovulis in loculo paucis, stylo cylindraceo, stigmate capitato.

H. fastigiatus, *Bertol. in Ann. Stor. Nat.* vol. iv. p. 62; *Gren. et Godr. Fl. France,* vol. iii. p. 217; *Baker in Journ. Linn. Soc.* vol. xi. p. 430; *Nyman. Conspect.* p. 301.

H. Pouzolzii, *Gay in Lois. Not.* (1810), p. 15; *Parlat. Fl. Ital.* vol. ii. p. 484.

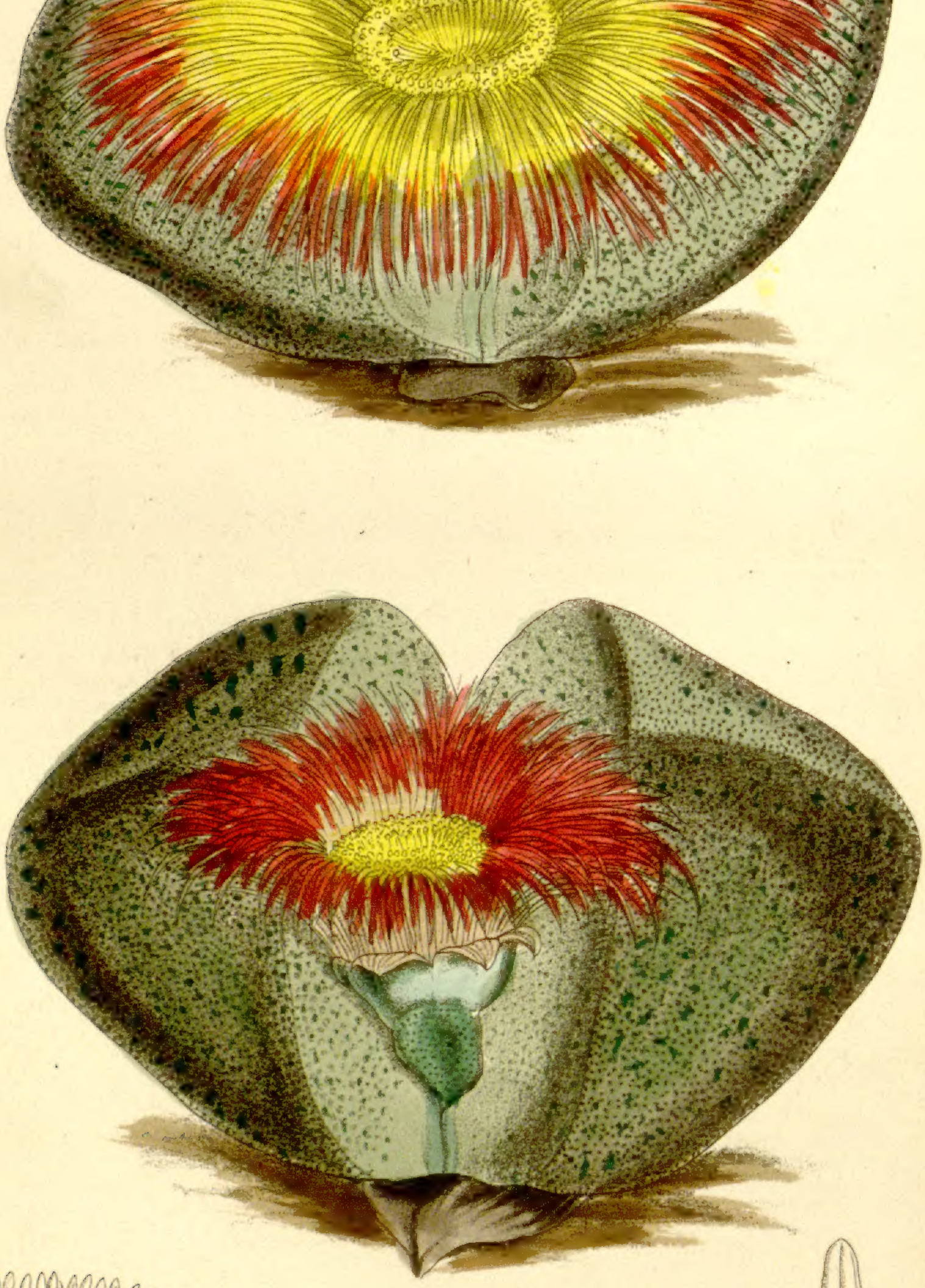
SCILLA fastigiata, *Visiani Fl. Cors. App.* p. 1.

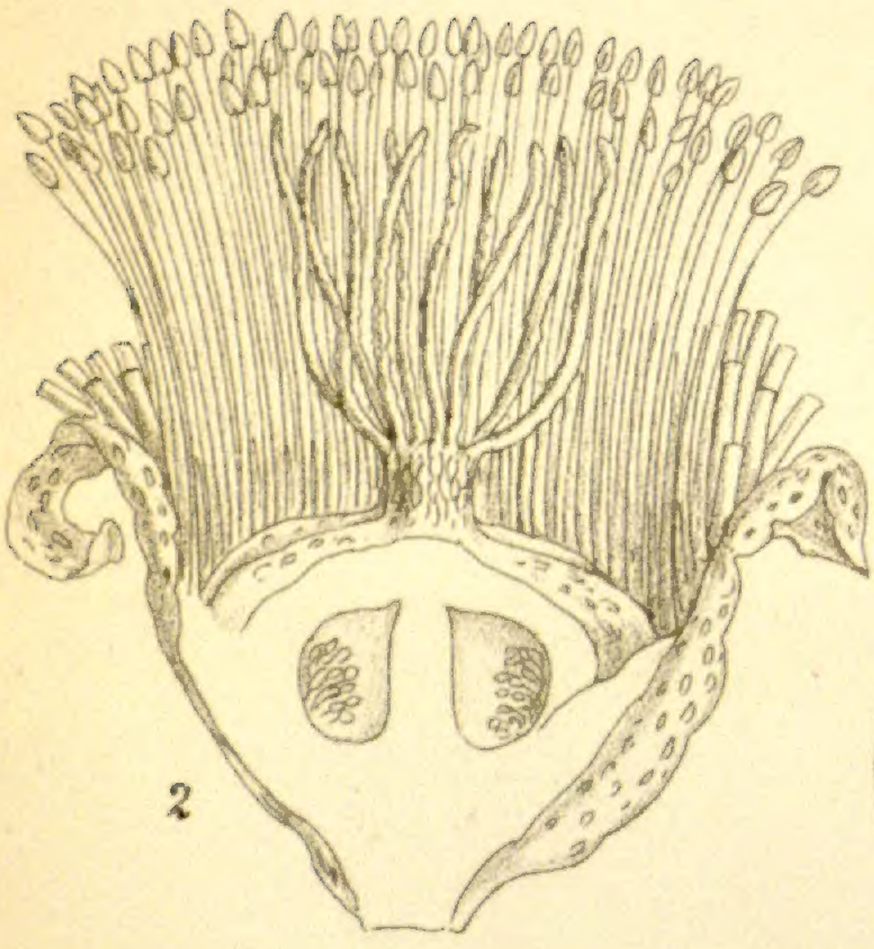
This is one of the least conspicuous representatives of the great genus *Hyacinthus*. At first sight it might easily be overlooked for *Scilla verna*, which it much resembles in stature and habit, but it is a true Hyacinth, with the segments of the perianth united in a distinct cup at the base. It has a very limited geographical range, being only known to inhabit the mountains of Corsica and Sardinia, and has never before been figured. It flowers, like *Scilla verna*, in March and April. Our drawing was made from specimens that flowered in two successive years in the herbaceous department at Kew, the bulbs of which were presented to the garden by the Rev. H. Harpur Crewe.

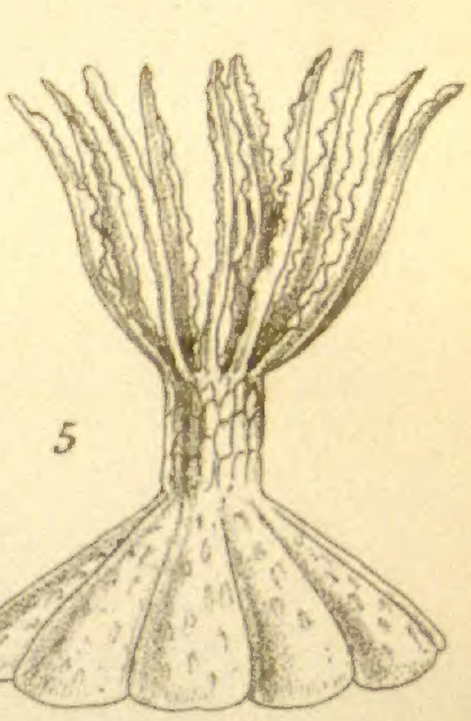
DESCR. *Bulb* ovoid, not more than half an inch in diameter, with several pale thin outer tunics of firm texture. *Leaves* three or four in the wild plant, half a dozen or more in the cultivated, subulate, weak in texture, quite glabrous, sometimes half a foot long, contemporary with the flowers,

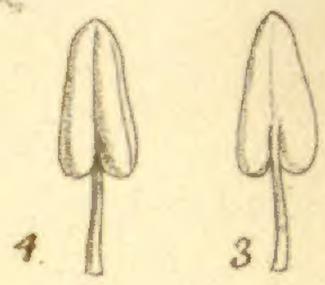
rounded on the back, channelled down the face. *Scape* slender, erect, terete, shorter than the leaves. *Raceme* few-flowered, often in the wild plant congested into a corymb; pedicels solitary, erecto-patent, the lower ones sometimes longer than the flowers; bracts small, membranous, lilac-tinted, deltoid or lanceolate. *Perianth* bright lilac, a quarter or a third of an inch long; segments oblong-lanceolate, longer than the campanulate tube. *Stamens* six, inserted in a single row at the throat of the perianth-tube; filaments very short, flattened; anthers oblong, minute, blue after they have shed their pollen. *Ovary* sessile, globose, with very few ovules in each cell; style long, cylindrical; stigma capitate. *Fruit* a small globose capsule.—*J. G. Baker.*

Fig. 1, Section of a leaf; 2, one of the six segments of the perianth; 3, two views of an anther; 4, pistil, complete; 5, horizontal section of ovary:—*all more or less enlarged.*









1. 3

M.S.del, J.N.Fitch lith

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TAB. 6664.

MESEMBRYANTHEMUM BOLUSII.

Native of South Africa.

Nat. Ord. FICOIDEÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 853.)

MESEMBRYANTHEMUM *Bolusii*; acaule, late obconicum, 3–4 poll. diameter, glaberrimum, glaucum, griseo-virescens, creberrime granulato-punctulatum, foliis (maturis) 2 oppositis crassissimis subhemisphericis v. obscure 3-gonis, facie planis, dorso obscure et obtuse carinatis marginibus obtusis, floribus 1–2 sessilibus 2–3 poll. diam. 2–4-bracteatis, calycis tubo obconico limbo 6-lobo, lobis oblongis obtusis recurvis, petalis perplurimis liberis 2–3-serialibus angustissime linearibus infra medium flavis dein rubris, staminibus numerosissimis multiseriatis calycis lobis duplo longioribus, ovarii vertice late conico 10-sulcato, stylo brevi crasso, stigmatibus 10 crassiuscule filiformibus rugulosis.

This is quite as singular a plant as its ally, *M. truncatellum* (Plate 6077 of this work), but is even more bizarre in form and colour, the almost filiform and most delicate petals contrasting strangely with the lumpy ungainly form of the leaves over which they spread. As a species it appears to be entirely new, nor is it easy to say to which of the sections of the genus under Sonder's arrangement (in Harvey's "Flora Capensis," vol. ii. p. 392) it should be referred, differing as it does from the *Sphæroidea* in the leaves not being connate to near the apex, or the petals united at the base; from the *Subquadrifolia* in having only two leaves, and in the many stigmas; and from the *Aloidea* in the leaves being only two, and not attenuate to the apex. The discovery of this singular plant is due to Mr. H. Bolus, F.R.S., a very able South African botanist, who sent plants of it to Kew some years ago. These were exhibited in the Succulent House, from which they suddenly disappeared in 1877. For the specimen here figured I am indebted to Mr. Peacock, of Sudbury House, Hammersmith, whose beautiful collection of Cacti and Aloes was so long deposited by him in the south octagon of the Temperate House for

the inspection of the public. It flowered in July of this year. He informs me that it was sent with several others from Graham's Town, and that the flower opens by five o'clock.

DESCR. A stemless dwarf succulent plant, consisting at maturity of two fully-formed leaves, placed at right angles to a pair of small withered ones at their bases, and one or two sessile flowers between them. *Leaves* trigonously hemispherical, two inches in diameter, of a dull grey green, covered with minute green pustular spots; face or upper surface nearly flat, back obscurely bluntly keeled and slightly laterally compressed, margins rounded. *Flowers* sessile between the leaves, two to three inches in diameter, with two fleshy oblong trigonous bracts at the base placed at right angles to the leaves. *Calyx-tube* half an inch in diameter, turbinate; lobes six, oblong, revolute. *Petals* very numerous, two-thirds to one and a quarter inch long, in several series, very narrowly linear, almost filiform, spreading and recurved, free at the base, yellow below the middle, dull red beyond it. *Stamens* very numerous, in many series, twice as long as the calyx-lobes. *Ovary* with a low ten-grooved conical crown, ending in a short thick style; stigmas ten, filiform and rugose.—*J. D. H.*

Fig. 1, Bracts; 2, vertical section of flower with the petals removed; 3 and 4, anthers; 5, top of ovary; 6, ovules; 7, single ovule:—*all enlarged.*

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